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*Junker*  
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# Conversion Factors and Weights and Measures

For Agricultural Commodities and  
Their Products

U.S. Department of Agriculture  
Economics, Statistics, and Cooperatives Service  
Statistical Bulletin No. 616

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# CONVERSION FACTORS AND WEIGHTS AND MEASURES FOR AGRICULTURAL COMMODITIES AND THEIR PRODUCTS

The tables in this report were compiled to provide a manual of uniform conversion factors for use in statistical, research, and service programs of the Department. A reasonably complete set of all-purpose factors is presented. However, for a particular commodity, the data may not be entirely adequate for all uses.

The data are intended to represent overall averages except where indicated. However, in some instances the averages are only approximations. All conversion factors included are based on the most recent and reliable information available and are intended to reflect current conditions and practices. Factors for many commodities change from year to year; therefore, caution should be exercised when using these data to compile or revise historical series.

The number of significant figures shown for many factors does not necessarily indicate the degree of precision. Some of the factors are in common use and carry more significant digits than might be justified when considering the accuracy of the data from which they were derived.

Data for the revisions in this report were compiled by Cleveland P. Eley under the general supervision of Henry Badger. Instead of the task force method used in the last revision, commodity specialists in the Commodity Economics Division of the Economics, Statistics, and Cooperatives Service provided leadership for revisions of the tables in their area of interest. These include Larry Duewer and Allen Baker for livestock and livestock products; Alfred Burns, Charles Porter, and Jules Powell for fruits and vegetables; Charles Shaw and Floyd Lasley for dairy products; George Kromer for fats and oils products; Kenneth Blase for poultry and eggs; Frederick Gray for sugar, coffee, and tea; John Lawler for fibers; and Robert Enochian for dehydrated and frozen products. Other persons in the Department also sharing the responsibility for updating this report included Russell Hawes, W. Edmond Tyler, Larry Crabtree, and Donald Liden of the Agricultural Marketing Service; David Shenkenberg and Curtis Green in Food Safety and Quality Service; and Wilda Martinez of the Agricultural Research Service (now part of Science and Education Administration) who coordinated requests for data from scientists at ARS (SEA) regional research laboratories. L. W. Van Meir, National Canners Association, provided data on canned fruits and vegetables.

A new table showing metric wet and dry volume conversion factors has been added. These data along with other metric information provide a basis for converting most weights and measures shown in this report to metric measures.

This report is a revision of Statistical Bulletin No. 362, Conversion Factors and Weights and Measures for Agricultural Commodities and Their Products, published by the Economic Research Service, USDA, in June 1965. Many of the revisions in this report reflect the changing structure of agricultural production and marketing patterns.

Table 1--Factors for converting domestic and metric weights and measures commonly used for agricultural commodities

Domestic weight	:	Metric equivalent	::	Metric weight	:	Domestic equivalent
	:		:		:	
	:		:		:	
1 ounce	=	28.3495 grams		1 gram	=	0.035274 ounce
1 pound	=	453.5924 grams		1 gram	=	.0022046 pound
1 pound	=	.4535924 kilogram		1 kilogram	=	2.204622 pounds
1 pound	=	.0045359 metric quintal		1 metric quintal	=	220.4622 pounds
1 pound	=	.0005 short ton		1 short ton	=	2,000 pounds
1 pound	=	.0004536 metric ton		1 metric ton	=	2,204.622 pounds
1 pound	=	.0004464 long ton		1 long ton	=	2,240 pounds
1 kilogram	=	.0011023 short ton		1 short ton	=	907.1849 kilograms
1 kilogram	=	.001 metric ton		1 metric ton	=	1,000 kilograms
1 kilogram	=	.0009842 long ton		1 long ton	=	1,016.047 kilograms
1 short ton	=	.907185 metric ton		1 metric ton	=	1.102311 short tons
1 long ton	=	1.016047 metric tons		1 metric ton	=	.984206 long ton
1 short ton	=	.892857 long ton		1 long ton	=	1.12 short tons
1 million pounds	=	500 short tons		1 short ton	=	.002 million pounds
1 million pounds	=	453.5925 metric tons		1 metric ton	=	.0022046 million pounds
1 million pounds	=	446.4286 long tons		1 long ton	=	.00224 million pounds
<u>60-pound bushel of wheat, white potatoes, soybeans</u>						
1 bushel	=	.03 short ton		1 short ton	=	33.333 bushels
1 bushel	=	.0272155 metric ton		1 metric ton	=	36.7437 bushels
1 bushel	=	.0267857 long ton		1 long ton	=	37.333 bushels
1 bushel	=	.272155 metric quintal		1 metric quintal	=	3.67437 bushels
1 bushel	=	27.2155 kilograms		1 kilogram	=	.036744 bushel
<u>56-pound bushel of corn, rye, sorghum grain, flaxseed</u>						
1 bushel	=	.028 short ton		1 short ton	=	35.714 bushels
1 bushel	=	.0254 metric ton		1 metric ton	=	39.368 bushels
1 bushel	=	.025 long ton		1 long ton	=	40 bushels
<u>48-pound bushel of barley, buckwheat, apples</u>						
1 bushel	=	.024 short ton		1 short ton	=	41.667 bushels
1 bushel	=	.021772 metric ton		1 metric ton	=	45.9296 bushels
1 bushel	=	.021429 long ton		1 long ton	=	46.667 bushels
<u>32-pound bushel of oats</u>						
1 bushel	=	.016 short ton		1 short ton	=	62.5 bushels
1 bushel	=	.014515 metric ton		1 metric ton	=	68.8944 bushels
1 bushel	=	.014286 long ton		1 long ton	=	70 bushels
<u>38-pound bushel of oats</u>						
1 bushel	=	.019 short ton		1 short ton	=	52.63 bushels
1 bushel	=	.01724 metric ton		1 metric ton	=	58.016 bushels
1 bushel	=	.01696 long ton		1 long ton	=	58.94 bushels

Table 2--Factors for converting domestic and metric dry and liquid measures 1/

Unit	:	Metric equivalent	:	Unit	:	Domestic equivalent
<u>Dry measure</u>			:	<u>Dry measure</u>		
1 pint	=	0.5506 liter	::	1 liter	=	1.8162 pints
1 quart	=	1.1012 liters	::	1 liter	=	.9081 quart
1 peck	=	8.8098 liters	::	1 liter	=	.1135 peck
1 bushel	=	35.2391 liters	::	1 liter	=	.0284 bushel
1 cubic inch	=	.0164 liter	::	1 liter	=	61.0240 cubic inches
1 cubic foot	=	28.3169 liters	::	1 liter	=	.0353 cubic foot
1 cubic meter	=	1.000 liter	::	1 liter	=	.0010 cubic meter
<u>Liquid measure</u>			:	<u>Liquid measure</u>		
1 fluid ounce	=	.0296 liter	::	1 liter	=	33.8140 fluid ounces
1 liquid pint	=	.4732 liter	::	1 liter	=	2.1134 pints
1 liquid quart	=	.9464 liter	::	1 liter	=	1.0567 quarts
1 gallon	=	3.7854 liters	::	1 liter	=	.2642 gallon
1 cubic inch	=	.0164 liter	::	1 liter	=	61.0237 cubic inches
1 cubic foot	=	28.3169 liters	::	1 liter	=	.0353 cubic foot
1 milliliter	=	.0010 liter	::	1 liter	=	1,000.0000 milliliters

1/ In the metric system of weights and measures, designations of multiples and sub-divisions of any unit may be derived by combining with the name of the unit the prefixes deka, hecto, and kilo, meaning, respectively, 10, 100, and 1,000, and deci, centi, and milli, meaning, respectively, one-tenth, one-hundredth, and one-thousandth.

Table 3--Factors for converting ounces to pounds

Ounces	:	Plus 0 ounces	:	Plus 1/4 ounce	:	Plus 1/2 ounce	:	Plus 3/4 ounce
<u>Pounds</u>								
0	:	NA	:	0.015625	:	0.031250	:	0.046875
1	:	0.062500	:	.078125	:	.093750	:	.109375
2	:	.125000	:	.140625	:	.156250	:	.171875
3	:	.187500	:	.203125	:	.218750	:	.234375
4	:	.250000	:	.265625	:	.281250	:	.296875
5	:	.312500	:	.328125	:	.343750	:	.359375
6	:	.375000	:	.390625	:	.406250	:	.421875
7	:	.437500	:	.453125	:	.468750	:	.484375
8	:	.500000	:	.515625	:	.531250	:	.546875
9	:	.562500	:	.578125	:	.593750	:	.609375
10	:	.625000	:	.640625	:	.656250	:	.671875
11	:	.687500	:	.703125	:	.718750	:	.734375
12	:	.750000	:	.765625	:	.781250	:	.796875
13	:	.812500	:	.828125	:	.843750	:	.859375
14	:	.875000	:	.890625	:	.906250	:	.921875
15	:	.937500	:	.953125	:	.968750	:	.984375

NA = Not applicable.

Table 4--Conversion factors for test weight per Winchester bushel, test weight per imperial bushel, and kilograms per hectoliter 1/

Item	:	Factor
Pounds per Winchester bushel to--	:	
Pounds per imperial bushel	:	1.032
Kilograms per hectoliter	:	1.287
Pounds per imperial bushel to--	:	
Pounds per Winchester bushel	:	.969
Kilograms per hectoliter	:	1.247
Kilograms per hectoliter to--	:	
Pounds per Winchester bushel	:	.777
Pounds per imperial bushel	:	.802

1/ Winchester bushel is the standard U.S. bushel (2,150.42 cubic inches).

Table 5--Comparison of test weight per Winchester bushel, test weight per imperial bushel, and kilograms per hectoliter

(25-to-65-pound basis Winchester bushel)

Test weight per Winchester bushel	Test weight per imperial bushel	Kilograms per hectoliter
<u>Pounds</u>	<u>Pounds</u>	<u>Kilograms</u>
25	25.8	32.2
26	26.8	33.5
27	27.9	34.7
28	28.9	36.0
29	29.9	37.3
30	31.0	38.6
31	32.0	39.9
32	33.0	41.2
33	34.1	42.5
34	35.1	43.8
35	36.1	45.0
36	37.2	46.3
37	38.2	47.6
38	39.2	48.9
39	40.2	50.2
40	41.3	51.5
41	42.3	52.8
42	43.3	54.1
43	44.4	55.3
44	45.4	56.6
45	46.4	57.9
46	47.5	59.2
47	48.5	60.5
48	49.5	61.8
49	50.6	63.1
50	51.6	64.4
51	52.6	65.6
52	53.7	66.9
53	54.7	68.2
54	55.7	69.5
55	56.8	70.8
56	57.8	72.1
57	58.8	73.4
58	59.9	74.6
59	60.9	75.9
60	61.9	77.2
61	63.0	78.5
62	64.0	79.8
63	65.0	81.1
64	66.0	82.4
65	67.1	83.7

Table 6--Factors for obtaining retail weights from weights at specified market levels

Commodity	Primary weight form	Factor
Dairy products:		
Fluid milk and cream	Farm weight	0.93
Cheese, American, and other	Factory weight	1.00
Meats:		
Beef	Carcass weight	.74
Veal	do.	.83
Lamb	do.	.89
Pork	do.	<u>1</u> /.92
Poultry:		
Chickens	Ready-to-cook weight	1.00
Turkeys	do.	1.00
Eggs	Farm weight	<u>2</u> /.97
Fish:		
Fresh and frozen	Edible weight	<u>3</u> /1.00
Shellfish, fresh and frozen	do.	1.00
Cured fish	Cured weight	1.00
Fats and oils:		
Lard	Fat content	1.00
Margarine	do.	1.25
Compounds and vegetable and cooking fats	do.	1.00
Peanuts, shelled edible	Farmer's stock basis	.556
Sugar	Refined	1.00
	Raw value	.935
Dry beans and peas	Farm weight, cleaned	.96
Grain products:		
Barley, pearl	Farm weight of barley	.604
Barley, other food use	do.	<u>4</u> /.708
Wheat products:		
White flour	Farm weight of wheat	.731
Whole wheat flour or meal	do.	.98
Corn products:		
Corn meal	Farm weight of shelled corn	.893
Hominy grits	do.	.518
Cornstarch	do.	.614
Corn cereals	do.	.384

See footnotes at end of table.

Continued--

Table 6--Factors for obtaining retail weights from weights at specified market levels--Continued

Commodity	Primary weight form	Factor
Grain products--Continued:		
Corn syrup	Farm weight of shelled corn	0.672
Corn sugar	do.	.536
Oat cereal	Farm weight of oats	.579
Rye flour	Farm weight of rye	.80
Buckwheat flour	Farm weight of buckwheat	.60
Rice, milled	Wholesale weight	1.00
Fresh fruits:		
Apples	Farm weight	.96
Apricots	do.	.91
Avocados	do.	.94
Bananas	do.	1.00
Cherries	do.	.92
Citrus:		
Oranges	do.	.97
Tangerines	do.	.94
Grapefruit	do.	.97
Lemons	do.	.96
Limes	do.	.95
Tangelos	do.	.96
Cranberries	do.	.96
Dates	do.	.96
Figs	do.	.91
Grapes	do.	.91
Melons:		
Cantaloups	do.	.92
Watermelons	do.	.90
Nectarines	do.	.95
Peaches	do.	.94
Pears	do.	.95
Pineapples	do.	.95
Plums or prunes	do.	.95
Strawberries	do.	.92
Canned fruits and juices	Canned weight	1.00
Chilled fruits and juices	Product weight	1.00
Dried fruits	Packed processed weight	1.00
Frozen fruits and juices	Frozen weight	1.00
Fresh vegetables:		
Onions, dry	Farm weight	.94
Potatoes	do.	.96
See footnotes at end of table.		Continued--

Table 6--Factors for obtaining retail weights from weights at specified market levels--Continued

Commodity	Primary weight form	Factor
Fresh vegetables--Continued:		
Sweet potatoes	Farm weight	0.90
Tomatoes	do.	.85
Dark green and deep yellow vegetables:		
Broccoli	do.	.92
Carrots	do.	.97
Escarole	do.	.93
Kale	do.	.88
Peppers, green	do.	.92
Spinach	do.	.88
Other:		
Artichokes	do.	.93
Asparagus	do.	.91
Beans:		
Lima	do.	.92
Snap	do.	.94
Beets	do.	.93
Brussels sprouts	do.	.92
Cabbage	do.	.93
Cauliflower	do.	.92
Celery	do.	.93
Corn	do.	.92
Cucumbers	do.	.92
Eggplant	do.	.90
Garlic	do.	.81
Lettuce, all varieties	do.	.93
Onions, green	do.	.94
Peas	do.	.95
Canned vegetables	Canned weight	1.00
Frozen vegetables	Frozen weight	1.00
Dehydrated vegetables	Dehydrated weight	1.00
Beverages:		
Coffee	Green bean basis	.84
Tea	Import weight basis	1.00
Cocoa products	Bean basis	5/.80

1/ Average 1975-77. 2/ This factor allows for breakage only. In addition there is a loss of weight of about 4 percent from producer to retailer because of evaporation. The latter loss does not affect the nutritional value of the eggs. 3/ Factor for obtaining edible weight from round weight is 0.45. Factor for obtaining dressed weight from round weight is 0.70. 4/ In terms of malt equivalent. 5/ Chocolate liquor equivalent (53 percent fat content).

Table 7--Net content and approximate servings per container for various canned foods 1/

Product	Container size	Net weight or volume	Cups or pieces	Servings per container	Serving size
<b>Fruits:</b>					
Apples; applesauce; berries; cherries; grapes; grapefruit and orange sections; fruit cocktail; fruits for salad; sliced peaches; pears; pineapple, chunks, crushed, tidbits	No. 8Z tall No. 303 No. 2 No. 2½ No. 10	8½ - 8-3/4 oz. 16 - 17 oz. 1 lb. 4 oz. 1 lb. 13 oz. 6 lb. 2 oz. to 6 lb. 12 oz.	1 cup 1-3/4 - 2 cups 2¼ - 2½ cups 3¼ - 3½ cups 12 - 13 cups	2 4 5 7 25	½ cup ½ cup ½ cup ½ cup ½ cup
Apricots, whole, medium size	No. 303 No. 2½ No. 10	16 - 17 oz. 1 lb. 13 oz. 6 lb. 10 oz.	8 - 14 15 - 18 50 - 60	4 7 25	2 - 3 apricots 2 - 3 apricots 2 - 3 apricots
Apricots, halves, medium size	No. 8Z tall No. 303 No. 2½ No. 10	8-3/4 oz. 16 - 17 oz. 1 lb. 13 oz. 6 lb. 10 oz.	6 - 12 12 - 20 26 - 35 95 - 130	2 4 7 25	3 - 5 halves 3 - 5 halves 3 - 5 halves 3 - 5 halves
Peaches, halves; pears, halves	No. 303 No. 2½ No. 10	16 - 17 oz. 1 lb. 13 oz. 6 lb. 10 oz.	6 - 10 7 - 12 45 - 65	3 7 25	2 medium halves 1 large half 2 medium halves
Pineapple, slices	No. 1 flat No. 2 No. 2½ No. 10	9 oz. 1 lb. 4 oz. 1 lb. 14 oz. 6 lb. 12 oz.	4 10 8 28 - 50	2 5 8 25	2 slices 2 slices 1 large slice 1 large or 2 small slices
Plums, prunes	No. 8Z tall No. 303 No. 2½ No. 10	8-3/4 oz. 16 - 17 oz. 1 lb. 14 oz. 6 lb. 10 oz.	7 - 9 10 - 14 12 - 20 40 - 60	2 4 7 25	2 - 3 plums 2 - 3 plums 2 - 3 plums 2 - 3 plums
Figs	No. 8Z tall No. 303 No. 2½ No. 10	8 - 9 oz. 16 - 17 oz. 1 lb. 14 oz. 7 lb.	6 - 12 12 - 20 18 - 24 70 - 90	2 4 7 25	3 - 4 figs 3 - 4 figs 3 - 4 figs 3 - 4 figs
Cranberry sauce	No. 6 - 8Z No. 300 No. 10	6 - 8 oz. 1 lb. 7 lb. 5 oz.	3/4 - 1 cup 2 cups 12 - 13 cups	4 8 50	¼ cup ¼ cup ¼ cup
Olives, ripe <u>2/</u>	No. 8Z tall No. 1 tall Quart olive No. 10	4½ oz. 9 oz. 1 lb. 2 oz. 4 lb. 2 oz.	-- -- -- --	-- -- -- --	3 olives 3 olives 3 olives 3 olives
<b>Vegetables:</b>					
Asparagus cuts; beans, green and wax; kidney, lima, beets; carrots; corn; hominy; okra; onions; peas; peas and carrots; blackeye peas; pumpkins; sauerkraut; spinach and other greens; squash; succotash; sweetpotatoes <u>3/</u> ; tomatoes; mixed vegetables; potatoes, white, cut, sliced	No. 8Z tall No. 2 vacuum No. 303 No. 2 No. 2½ No. 10	8 - 8½ oz. 12 oz. 16 - 17 oz. 1 lb. 4 oz. 1 lb. 13 oz. 6 lb. 2 oz. to 6 lb. 12 oz.	1 cup 1½ - 1-3/4 cups 2 cups 2¼ = 2½ cups 3¼ - 3½ cups 12 - 13 cups	2 4 4 5 7 25	½ cup ½ cup ½ cup ½ cup ½ cup ½ cup
Asparagus spears, medium size	No. 1 picnic Variable No. 2 No. 5 squat	10½ oz. 14½ - 16 oz. 1 lb. 3 oz. 4 lb. 4 oz.	9 - 12 spears 16 - 28 spears 20 - 30 spears 115 - 145 spears	2 3 5 25	4 - 6 spears 4 - 6 spears 4 - 6 spears 4 - 6 spears
Potatoes, white, peeled, whole, small	No. 303 No. 10	16 - 17 oz. 6 lb. 6 oz.	8 - 12 55 - 65	4 25	2 - 3 potatoes 2 - 3 potatoes
Beans, baked with pork in sauce	No. 8Z short No. 300 Jumbo No. 10	8-3/4 oz. 1 lb. 1 lb. 10 oz. 6 lb. 14 oz.	1 cup 1-3/4 cups 3 cups 12 - 13 cups	1 - 2 3 - 4 4 - 6 16 - 25	½ - 3/4 cup ½ - 3/4 cup ½ - 3/4 cup ½ - 3/4 cup

See footnotes at end of table.

Continued--

Table 7--Net content and approximate servings per container for various canned foods 1/--Continued

Product	Container size	Net weight or volume	Cups or pieces	Servings per container	Serving size
Vegetables--Cont.					
Mushrooms 2/	No. 2Z	2 oz.	1/3 cup	1	1/3 cup
	No. 4Z	4 oz.	2/3 cup	2	1/3 cup
	No. 8Z	8 oz.	1½ cups	4	1/3 cup
	No. 10	4 lb. 4 oz.	12 - 13 cups	36	1/3 cup
Pimentos, peppers, red sweet	--	2 oz.	½ cup	--	--
	No. 4Z	4 oz.	½ cup	--	--
	No. 7Z	7 oz.	1 cup	--	--
	No. 10	6 lb. 13 oz.	12 - 13 cups	--	--
Juices:					
Apples; cherry; cranberry;	No. 6 - 8Z tall	6 - 8 oz.	3/4 - 1 cup	1 - 2	4 - 6 oz.
grape, grapefruit, grape-	No. 211 cylinder	12 fl. oz.	1½ cups	3	4 oz.
fruit-orange, loganberry,	No. 211 cylinder	12 fl. oz.	1½ cups	2	6 oz.
nectars, orange, pineapple,	--	1 pint	2 cups	4	4 oz.
prune, tangerine, carrot,	--	1 pint	2 cups	3	6 oz.
sauerkraut, tomato, vege-	No. 2	1 pt. 2 fl. oz.	2¼ - 2½ cups	5	4 oz.
table, vegetable cocktail	No. 2	1 pt. 2 fl. oz.	2¼ - 2½ cups	3	6 oz.
	No. 2 cylinder	1 pt. 7 fl. oz.	3 cups	6	4 oz.
	No. 2 cylinder	1 pt. 7 fl. oz.	3 cups	4	6 oz.
	--	1 quart	4 cups	8	4 oz.
	--	1 quart	4 cups	5	6 oz.
	No. 3 cylinder	1 qt. 14 fl. oz.	5-3/4 cups	12	4 oz.
	No. 3 cylinder	1 qt. 14 fl. oz.	5-3/4 cups	8	6 oz.
	No. 10	3 quarts	12 cups	24	4 oz.
	No. 10	3 quarts	12 cups	16	6 oz.
Lemons and limes	No. 6Z	5½ - 6 oz.	3/4 cup	--	--
Soups:					
Condensed	No. 1 picnic	10½ - 12 oz.	1½ cups (2½ cups prepared soup)	3	3/4 cup
	No. 3 cylinder	3 lb. 2 oz.	5-3/4 cups (11½ cups prepared soup)	12 - 16	3/4 cup
Ready-to-serve	No. 8Z tall	8 fl. oz. indiv.	1 cup	1	1 cup
	No. 1 picnic	12 fl. oz.	1½ cups	2	3/4 cup
	No. 303	15 fl. oz.	2 cups	3	3/4 cup
	No. 2½	1 pt. 5 fl. oz.	2½ - 3 cups	4	3/4 cup
		to 1 pt. 9 fl. oz.			
	No. 10	3 quarts	12 cups	20	3/4 cup
Meat and poultry: 4/					
Chili con carne; chili con	No. 300	15 - 16 oz.	2 cups	3 - 4	½ - 2/3 cup
carne with beans	--	1½ lb.	3 cups	4 - 5	½ - 2/3 cup
	No. 10	6 lb. 12 oz.	12 - 13 cups	18 - 24	½ - 2/3 cup
Corned beef	--	12 oz.	--	4	3 oz.
	--	6 lb.	--	30	3 oz.
Corned beef hash	--	8 oz.	1 cup	1 - 2	½ - 2/3 cup
	--	1 lb.	2 cups	3 - 4	½ - 2/3 cup
	--	1½ lb.	3 cups	5 - 6	½ - 2/3 cup
	--	5 lb. 8 oz. to	12 - 13 cups	18 - 24	½ - 2/3 cup
		5 lb. 14 oz.			
Deviled ham	--	2¼ - 3 oz.	1/3 cup	3 - 4	1½ tbsp.
	--	4½ oz.	½ cup	5 - 6	1½ tbsp.
Deviled meat; potted meat;	--	2 - 3¼ oz.	1/3 cup	3 - 4	1½ tbsp.
meat spreads	--	5½ oz.	3/4 cup	8	1½ tbsp.
Luncheon meat	--	12 oz.	--	4	2 slices
	--	6 lb.	--	32	(3½ x 3/4 x 3/8 in.)
Tongue; beef, lamb, pork	--	6 oz.	--	2	3 oz.
	--	12 oz.	--	4	3 oz.
	--	1 - 2 lb.	--	5 - 10	3 oz.

See footnotes at end of table.

Continued--

Table 7--Net content and approximate servings per container for various canned foods 1/--Continued

Product	Container size	Net weight or volume	Cups or pieces	Servings per container	Serving size
Meat and poultry: 4/--Cont.					
Hams, whole:					
Small	--	1½ - 4 lb.	--	3 - 4	2 slices (4 x 3 x 1/8 in.)
Medium	--	6 - 8 lb.	--	per pound	
Large	--	9 - 14 lb.	--		
Poultry, boned, chicken and turkey	--	5 - 6 lb.	--	2	3 oz.
	--	12 oz.	--	4	3 oz.
	--	1 lb. 14 oz.	--	10	3 oz.
	--	2 lb. 3 oz.	--	12	3 oz.
Sausage, pork, and frankfurters	--	8 oz.	11 - 12	3 - 4	3 sausages
	--	12 oz.	8 - 9 large	4	2 sausages
Stew, beef and lamb	--	1 lb.	2 cups	2	3/4 cup
	--	1 lb. 4 oz.	2½ cups	3	3/4 cup
	--	1½ lb.	3 cups	4	3/4 cup
Vienna sausage	--	4 oz.	8 - 10	2	4 - 5 sausages
	--	9 oz.	16 - 20	4	4 - 5 sausages
Fish and seafood: 4/					
Clams	--	7½ oz.	1 cup	2	½ cup
Crab meat	--	5½ - 7½ oz.	3/4 - 1 cup	2 - 3	1/3 - ½ cup
Mackerel	--	1 lb.	2 cups	4	½ cup
Oysters	--	8 oz.	1 cup	2	½ cup
Salmon	--	7-3/4 oz.	1 cup	2	½ cup
	--	1 lb.	2 cups	4	½ cup
Sardines	--	3½ - 4 oz.	6 - 10	1½	5 - 7 sardines
Sardines, pilchards	--	15 oz.	6 - 7 large	4	1½ sardines
Shrimp 2/	--	4½ - 6½	25 - 35	3 - 4	10 - 12 medium size 6 - 8 jumbo size
Tuna in oil	--	6 - 7 oz.	1 cup	2	½ cup
	--	13 oz.	1-3/4 cups	4	½ cup
Infant foods: 4/					
Vegetables and fruits:					
Infant, strained and homogenized	--	4-3/4 oz.	½ cup	--	--
Junior, chopped	--	6½ oz.	3/4 cup	--	--
	--	8 oz.	7/8 cup	--	--
Meats:					
Infant, strained	--	3½ oz.	7 tablespoons	--	--
Junior, chopped	--	3½ oz.	7 tablespoons	--	--
Soups:					
Infant	--	4-3/4 oz.	½ cup	--	--
Junior	--	8 oz.	7/8 cup	--	--

-- = Not applicable.

1/ The net weight of various foods in the same size can or glass jar will vary with the density of the food. For the most part only minimum weights are shown in the table. Cups or pieces and servings in the table are approximate, and sizes of servings are given in rounded numbers to furnish a practical guide.

2/ Declared as drained weight. (The number of pieces per container varies as to size of the piece.)

3/ Sweetpotatoes also come in 1 pound 2 ounce to 1 pound 7 ounce cans.

4/ Contents usually declared as net weight. Container size is variable, strained and homogenized foods for infants, and chopped junior foods, come in small jars and jars suitable for the smaller servings used.

Source: National Canners Association.

Dairy Products

Table 8--Whole milk equivalents and milk solids factors

Commodity	Milk solids content 1/			Milk solids content 2/										Factors for obtaining whole milk equivalent in terms of-- 3/		
	Fat solids	Nonfat solids	Total milk solids	Milkfat		Milk solids nonfat		Total milk solids	Milkfat in solids	Moisture	Fat	Nonfat				
				Max.	Min.	Max.	Min.									
													Max.	Min.	Max.	Min.
1	2	3	4	5	6	7	8	9	10	11	14	15				
Percent															Pounds	
Whole milk from farm--wholesale	3.67	8.99	12.66	--	--	--	--	--	--	--	--	--	--	1.000	1.000	
Milk from plant--retail	3.40	8.99	12.39	--	3.25	--	8.25	--	--	--	--	--	--	.926	1.000	
Fresh milk concentrate	10.50	25.92	36.42	--	7.50	--	--	25.50	--	--	--	--	--	2.838	3.007	
Flavored milk drinks	1.37	--	--	--	--	--	--	--	--	--	--	--	--	.373	1.017	
Flavored milk	3.40	--	--	--	--	--	--	--	--	--	--	--	--	.568	.974	
Skim milk:																
Regular	.36	9.05	9.41	0.50	--	--	8.25	--	--	--	--	--	--	.098	1.050	
Solids added	.55	9.95	10.50	--	--	--	--	--	--	--	--	--	--	.150	1.154	
Lowfat milk	1.88	9.04	11.58	2.00	.50	--	8.25	--	--	--	--	--	--	.512	1.049	
Cultured buttermilk from modified skim milk	.99	--	--	--	--	--	--	--	--	--	--	--	--	.270	1.287	
Half and half:																
Regular	11.00	--	--	18.00	10.50	--	--	--	--	--	--	--	--	3.000	.909	
Modified	11.50	9.00	20.50	--	--	--	--	--	--	--	--	--	--	3.108	1.044	
Cream:																
Sour (cultured)	18.00	--	--	--	18.00	--	--	--	--	--	--	--	--	4.687	.986	
Sour (acidified)	--	--	--	--	18.00	--	--	--	--	--	--	--	--	5.000	.986	
Light	18.20	--	--	--	18.00	--	--	--	--	--	--	--	--	4.959	.852	
Medium	--	--	--	--	--	--	--	--	--	--	--	--	--	5.405	.832	
Light whipping	30.00	6.26	36.26	--	30.00	--	--	--	--	--	--	--	--	8.108	.726	
Heavy	36.00	--	--	--	36.00	--	--	--	--	--	--	--	--	9.237	.665	
Sweetened	40.00	5.37	45.37	--	--	--	--	--	--	--	--	--	--	10.811	.623	
Dry	50.00	49.20	99.20	--	--	--	--	--	--	--	--	--	--	13.514	5.708	
Plastic	80.00	1.10	81.10	--	--	--	--	--	--	--	--	--	--	21.622	.128	
Butter:																
Domestic	80.30	1.00	81.30	--	80.00	--	--	--	--	--	--	--	--	21.702	.116	
Export	--	--	--	--	--	--	--	--	--	--	--	--	--	22.297	.174	
Export	--	--	--	--	--	--	--	--	--	--	--	--	--	22.568	.174	
Butteroil and anhydrous milk fat	99.8	.10	99.90	--	--	--	--	--	--	--	--	--	--	26.973	.012	
Buttermilk	--	--	--	--	--	--	--	--	--	--	--	--	--	.135	1.021	
Dry buttermilk	5.30	91.90	97.20	--	4.50	--	--	--	--	--	--	--	--	1.433	10.661	
Condensed or evaporated butter-milk	1.50	26.40	27.90	--	--	--	--	--	--	--	--	--	--	.405	3.063	
Condensed milk:																
Sweetened	8.50	19.50	28.00	--	8.50	--	--	28.00	--	--	--	--	--	2.297	2.262	
Unsweetened	7.90	18.00	25.90	--	--	--	--	--	--	--	--	--	--	2.135	2.088	
Condensed skim milk, sweetened or unsweetened	.20	29.80	30.00	--	--	--	--	--	--	--	--	--	--	.054	3.457	
See footnotes at end of table.															Continued--	

See footnotes at end of table.

Continued--

Table 8--Whole milk equivalents and milk solids factors--Continued

Commodity	Milk solids content 1/			Milk solids content 2/						Factors for obtaining whole milk equivalent in terms of-- 3/				
	Fat solids:			Milkfat		Milk solids nonfat		Total milk solids		Moisture		Fat : Nonfat solids: solids		
	Nonfat solids:			Total milk solids:		Milk solids nonfat		Total milk solids		Moisture		Fat : Nonfat solids: solids		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Evaporated milk	7.90	18.00	25.90	--	7.50	--	--	25.50	--	--	--	2.135	2.088	
Dry whole milk	26.50	71.00	97.50	--	26.00	--	--	--	--	--	--	7.162	8.237	
Nonfat dry milk:														
Regular	.80	91.20	97.00	1.50	--	--	--	--	--	--	--	.216	.160	
Instant	.70	95.30	96.00	--	--	--	--	--	--	--	--	.189	11.056	
Yogurt	1.66	8.98	10.64	--	--	--	--	--	--	--	--	.452	2.447	
Casein	--	--	--	--	--	--	--	--	--	--	--	--	--	
Eggnog	7.00	--	--	--	--	--	--	--	--	--	--	.081	10.731	
Cheddar cheese:														
Natural legal comp.	--	--	--	--	--	--	--	--	50.00	39.00	--	8.243	3.538	
Natural commercial comp.	--	--	--	--	--	--	--	--	--	--	--	8.703	3.573	
Pasteurized process cheese	--	--	--	--	--	--	--	--	50.00	40.00	--	8.108	3.480	
Pasteurized process cheese food	--	--	--	--	23.00	--	--	--	--	44.00	--	6.216	3.828	
Pasteurized process cheese spread:	--	--	--	--	20.00	--	--	--	--	60.00	44.00	5.405	2.320	
Swiss cheese:														
Natural legal comp.	--	--	--	--	--	--	--	--	43.00	41.00	--	6.865	3.898	
Natural commercial comp.	--	--	--	--	--	--	--	--	--	--	--	7.568	3.828	
Pasteurized process cheese	--	--	--	--	--	--	--	--	43.00	42.00	--	7.270	3.840	
Italian types, mozzarella:														
Scamozza	--	--	--	--	--	--	--	--	45.00	60.00	52.00	6.703	3.503	
Hard, grating	--	--	--	--	--	--	--	--	32.00	34.00	--	6.351	5.046	
Blue mold, domestic type	--	--	--	--	--	--	--	--	50.00	46.00	--	8.243	3.422	
Cream cheese, natural	37.00	12.00	49.00	--	33.00	--	--	--	--	55.00	--	10.000	1.392	
Lowfat cottage cheese	--	--	--	2.00	.50	--	--	--	--	82.50	--	--	--	
Cottage cheese curd, dry	.30	20.70	21.00	--	--	--	--	--	--	80.00	--	.082	2.401	
Creamed cottage cheese	4.20	17.50	21.70	--	4.00	--	--	--	--	80.00	--	1.135	2.030	
Whey, unseparated, from mfg. of cheddar cheese	.40	6.60	7.00	--	--	--	--	--	--	--	--	.108	.766	
Dry whey	1.20	94.30	95.50	1.25	--	--	--	--	--	5.00	--	.324	10.940	
Lactose from separated cheese whey (98 percent lactose)	--	99.75	99.75	--	--	--	--	--	--	--	--	--	11.572	
Ice cream	10.00	11.00	21.00	--	--	--	--	--	--	--	--	2.703	1.276	
	12.00	10.00	22.00	--	--	--	--	--	--	--	--	3.243	1.160	

See footnotes at end of table.

Continued--

Table 8--Whole milk equivalents and milk solids factors--Continued

Commodity	Milk solids content 1/					Milk solids content 2/					Factors for obtaining whole milk equivalent in terms of-- 3/									
	Fat solids		Nonfat solids		Total milk solids	Milkfat		Milk solids nonfat		Total milkfat in solids		Moisture								
	1		2		3	4		5		6		7	8	9	10	11	12	13	14	15
	Max.		Min.			Max.		Min.		Max.		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	1		2		3	4		5		6		7	8	9	10	11	12	13	14	15
	1		2		3	4		5		6		7	8	9	10	11	12	13	14	15
Percent																				
Pounds																				
Food solids:Weight per:																				
per gallon : gallon :																				
Min. : Min. :																				
12 : 13 :																				
Ice cream--Continued																				
14.00 9.00 23.00 -- 10.00 -- 6.00 20.00 1.6 lb. 4.5 lb. 3.784 1.044																				
16.00 8.00 24.00 -- -- -- -- -- 4.324 .928																				
Ice milk																				
2.00 14.00 16.00 -- -- -- -- -- .541 1.624																				
4.00 12.00 16.00 7.00 2.00 -- -- -- -- -- 1.081 1.392																				
6.00 11.00 17.00 -- -- -- -- -- 1.622 1.276																				
Fruit sherbet																				
2.00 2.00 4.00 2.00 1.00 -- -- 2.00 -- 6.0 lb. .541 .232																				
6/5.00																				

-- = Not applicable.

1/ Based on Federal Food and Drug Standards of Identity and U.S. Average Factory Production Data, Federal Milk Order Market Statistics for 1975 Sept. 1-11 1974.

Industry averages are from table 45

2/ Federal Food and Drug Standards of Identity.

3/ These factors are based upon total conversion of the fat or solids not fat and do not represent actual yields attainable. For computing whole milk equivalents from milk of composition other than that of the single test (3.7 fat and 8.62 solids--not fat) shown, use the following: (1) Fat in the product + fat in the milk = whole milk equivalent in terms of fat as in column 5. Example--to compute the whole milk equivalent at 4.0 percent fat of 18 percent cream:  $0.18 + 0.04 = 4.50$ . (2) (1 - fat in the product) + (1 - fat in the milk) x nonfat solids in the milk = nonfat solids in the product. Example--for 18 percent cream:  $(1 - 0.18) + (1 - 0.04)$  provides the whole milk equivalent in terms of nonfat solids as in column 6. (3) To determine nonfat solids equivalents for mellorine type frozen desserts, use the factors for ice cream mixes of equivalent fat percentages.

4/ Computed from column 1 on basis of whole milk containing 3.7 percent fat.

5/ Computed from column 2 on basis of whole milk containing 3.7 percent fat.

6/ Maximum total milk solids in fruit sherbet.

Table 9--Whole milk, skim milk, buttermilk, and whey equivalents

Commodity	Conversion to--	Factors
Skim milk cheese	Fluid skim milk	16.0
Cottage, pot, and bakers' cheese	do.	7.14
Nonfat dry milk	do.	11.3
Dry casein	do.	35.7
Condensed and evaporated skim milk, sweetened and unsweetened	do.	3.0
Concentrated skim milk (for animal feed)	do.	3.0
Dry buttermilk	Fluid buttermilk	11.0
Condensed or evaporated buttermilk	do.	3.0
Dry whey	Fluid whey	13.5
Dry lactose	do.	25.0
Butter	Fluid whole milk	22.8
Whole milk cheese	do.	10.0
Evaporated milk	do.	2.14

Table 10--Dairy products: Net weight of standard units

Commodity	Unit	Pounds per unit 40°F. 1/	Pounds per unit 50°F. 1/	Pounds per unit 68°F. 1/
Whole milk--3.7 fat--8.62 S.N.F.	Gallon	8.62	8.60	8.58
Milk, standardized--3.5 fat--8.64 S.N.F.	do.	8.62	8.61	8.58
Skim milk, regular	do.	8.64	8.63	8.61
Skim milk, modified	do.	8.68	8.67	8.65
Cultured buttermilk	do.	8.66	8.66	8.62
Half and half, regular	do.	8.56	8.54	8.50
Chocolate flavored milk	do.	8.81	8.80	8.78
Chocolate flavored drink	do.	8.81	8.80	8.78
Cream, 18%	do.	8.52	8.50	8.45
20%	do.	8.51	8.49	8.43
36%	do.	8.41	8.37	8.29
40%	do.	8.38	8.35	8.25
Evaporated milk 2/ Condensed milk, sweetened	48/14-1/2 oz. (cans) 48/14 oz. (cans) 48/15 oz. (cans)	3/43.50 42.00 45.00	-- -- --	-- -- --
Ice cream - 10-12% fat	Gallon	--	--	4.50
- 12% mix liquid	do.	--	--	9.00
Ice milk - 4% fat	do.	--	--	4.50
- 4% mix (liquid)	do.	--	--	9.00
Fruit sherbet	do.	--	--	6.00

-- = Not applicable.

1/ To convert pounds per gallon to kilo per liter, multiply indicated figure by 0.4536 and divide by 3.785 (number of liters in 1 gallon). 2/ Weights of other can sizes: evaporated milk; 6 ounces, 6.75 pounds. Weight per gallon of liquid ice cream mix and similar products at 68° can be obtained by use of the following formula:

$$\text{Specific gravity} = \frac{100}{0.93 + \frac{\% \text{Fat}}{1.58} + \% \text{Sugar} + \% \text{Nonfat milk solids} + \% \text{Water}}$$

Specific gravity x 8.34 = Weight of 1 gallon of product. 3/ To convert pounds to kilograms, multiply pounds by 0.4536.

## Meat and Meat Products

Conversion factors for meats and meat products are used to calculate the dressed weight equivalent of bone-in cuts, boneless meat, and of cooked, prepared, or canned meat items. The fundamental basis for meat conversion factors is the relation between the amount of usable meat in each cut or carcass and the amount of waste in bone, fat, tendons, ligaments, and inedible trimmings. Factors for converting boneless beef into dressed weight equivalent were developed from data on the yield of boneless meat from various grades of carcasses. The cutting was under commercial boning practices.

Dressed meat equivalent (carcass weight) for beef, veal, lamb and mutton, and pork is defined as follows:

Beef: Weight of the dressed carcass with kidney and suet in.

Veal: Weight of dressed carcass with hide off and kidney and suet in.

Lamb and mutton: Weight of dressed carcass with kidney and suet in.

Pork: Weight of the dressed carcass with head off and kidney and leaf fat out.

Conversion factors for all formulated meat products are based upon the weight of boneless, and in the case of pork, skinless meat in each unit of finished product.

Formulas for certain products, such as franks or weiners, may vary from the factors shown depending upon relative prices and availability of different types of meat and edible offal, and processing methods used.

Table 11--Cattle, calves, sheep and lambs, and hogs commercially slaughtered:  
Average live weight and dressing yields 1966-75 and 1976

Species	Live weight		Dressing yields	
	Average	1976 <sup>1/</sup>	Average	1976
	1966-75		1966-75	
	- - - - Pounds - - - -		- - - - Percent - - - -	
Cattle	1,024	1,018	59.0	59.1
Calves	247	267	56.3	56.7
Sheep and lambs	104	109	49.2	49.5
Hogs	240	238	<u>2/</u> 70.4	<u>2/</u> 71.4

<sup>1/</sup> Cattle and calf weights for 1976 were affected by the large number of nonfed cattle marketed.

<sup>2/</sup> Dressing yield for packer-style, pork carcass, federally inspected slaughter. To obtain shipper-style pork carcass, add 7 percent.

Table 12--Beef: Percentage yields of bone-in cuts and boneless meat

Carcass and wholesale cuts	Yield of untrimmed bone-in wholesale cuts		Yield of trimmed boneless meat <u>1/</u>	
	Prime, Choice, and Good <u>2/</u>	Canner and Cutter	Prime, Choice, and Good <u>2/</u>	Canner and Cutter
	Percent			
Carcass, whole	100.0	100.0	69.8	73.3
Forequarter	52.2	52.1	71.7	72.0
Rib	9.6	8.3	58.1	58.9
Chuck, square cut	27.2	29.4	77.0	77.7
Plate	8.3	7.4	72.6	73.5
Brisket	4.2	3.5	74.6	71.1
Foreshank	2.9	3.6	60.5	53.4
Hindquarter	47.8	47.9	67.7	74.8
Round	22.7	25.0	77.1	78.7
Sirloin	8.8	10.1	74.6	77.1
Short loin	8.2	6.9	66.7	70.1
Flank	5.7	4.8	51.5	74.4
Kidney knob	2.5	1.2	--	--

-- = Not applicable.

1/ All cuts trimmed of fat exceeding that amount normally left on retail cuts (1/4 to 1/2 inch).

2/ Based on cattle representing the full range of yield grades but with an average of roughly yield Grade 3.

Table 13--Beef: Boneless to bone-in conversion factors

Carcass and wholesale cuts	Factors for converting trimmed boneless meat to--			
	Untrimmed bone-in equivalents		Trimmed bone-in equivalents	
	Prime, Choice, and Good <u>1/</u>	Canner and Cutter	Prime, Choice, and Good <u>1/</u>	Canner and Cutter
Carcass, whole	1.43	1.36	1.43	1.36
Forequarter	1.39	1.39	1.31	1.38
Rib	1.72	1.70	1.60	1.69
Chuck, square cut	1.30	1.29	1.26	1.29
Plate	1.38	1.36	1.18	1.32
Brisket	1.34	1.41	1.14	1.35
Foreshank	1.65	1.87	1.65	1.86
Hindquarter	1.48	1.34	1.25	1.27
Round	1.30	1.27	1.20	1.25
Sirloin	1.34	1.30	1.18	1.24
Short loin	1.50	1.43	1.15	1.29
Flank	1.94	1.34	1.07	1.08

1/ Based on cattle representing the full range of yield grades but with an average of roughly yield Grade 3.

Table 14--Veal and calf: Percentage yield of bone-in cuts and boneless meat plus boneless to bone-in conversion factors

Carcass and wholesale cuts	Yield of bone-in wholesale cuts		Yield of trimmed boneless meat 1/		Factors for converting bone- less meat to untrimmed bone- in equivalent	
	Choice and Good	Standard, Utility, and Cull	Choice and Good	Standard, Utility, and Cull	Choice and Good	Standard, Utility, and Cull
	Percent					
Carcass, whole	100.0	100.0	68.5	69.5	1.46	1.44
Foresaddle	48.6	49.7	70.4	69.3	1.42	1.45
Chuck	26.1	27.6	73.5	72.8	1.36	1.38
Breast	14.3	14.3	62.8	62.6	1.59	1.62
Hotel rack, 7 rib	8.2	7.8	73.8	69.3	1.35	1.45
Hindsaddle	51.4	50.3	66.6	70.1	1.51	1.44
Leg, includes sirloin	36.4	38.8	72.8	73.5	1.38	1.37
Loin	7.0	6.4	73.3	69.8	1.36	1.45
Flank	4.8	3.4	53.4	68.5	1.87	1.48
Kidney knob	3.2	1.7	--	--	--	--

-- = Not applicable.

1/ All cuts trimmed of fat exceeding that amount normally left on retail cuts ( $\frac{1}{4}$  to  $\frac{1}{2}$  inch.

Table 15--Fresh pork: Percentage yields of bone-in cuts and boneless meat, plus boneless to bone-in conversion factors <sup>1/</sup>

Carcass and wholesale cuts	: Approximate	: Yield of bone-	: Yield of bone-	: Factors for con-
	: percentage	: in trimmed	: less meat from	: verting boneless
	: of	: wholesale	: wholesale	: meat to bone-in
	: live weight	: cuts	: cuts	: equivalents
	----- Percent -----			
Packer-dressed carcass	: 71.00	100.00	67.0	1.49
Boneless, skinless meat	: 47.57	67.00	100.0	1.00
Hams:				
Skinned, bone-in	: 16.96	23.89	61.5	1.63
Skinned, semi-boneless	: 13.06	18.40	77.0	1.30
Skinless, boneless	: 10.43	14.69	100.0	1.00
Shoulders:				
Picnics:				
Skinned, bone-in	: 6.90	9.72	70.5	1.42
Skinless, boneless	: 4.86	6.85	100.0	1.00
Butts, skinless:				
Bone-in (Boston)	: 5.15	7.25	70.0	1.43
Boneless	: 3.60	5.08	100.0	1.00
Loins:				
Bone-in	: 14.16	19.94	30.0	3.33
Boneless	: 4.25	5.98	100.0	1.00
Bellies:				
Slab, skin on	: 12.91	18.18	93.0	1.08
Slab, skin off	: 12.01	16.91	100.0	1.00
Jowls (bacon squares)	: 1.10	1.55	--	--
Spareribs	: 2.76	3.89	--	--
Feet, front	: 0.60	0.85	--	--
Tails	: 0.20	0.28	--	--
Neckbones	: 0.90	1.27	--	--
Trimnings:				
80-percent lean	: 0.71	1.00	--	--
50-percent lean	: 0.96	1.35	--	--
Fat, skin, etc.	: 6.20	8.73	--	--
Shrink and loss	: 1.49	2.10	--	--

-- = Not applicable.

<sup>1/</sup> Developed in cooperation with Agr. Mktg. Serv., U.S. Dept. Agr.

Table 16--Lamb: Percentage yields of bone-in cuts and boneless meat plus boneless to bone-in conversion factors 1/

Wholesale cuts	Carcass weight	Boneless meat average <u>2/</u>	Factors for converting trimmed boneless meat to bone-in equivalent
	Percent		
Carcass, whole <u>3/</u>	100.0	65.8	1.52
Foresaddle, whole	51.4	65.9	1.52
Breast, including shank	16.4	59.9	1.67
Chuck	27.2	70.2	1.42
Hotel rack	7.8	63.5	1.57
Hindsaddle, whole	48.6	65.7	1.52
Leg	31.0	69.0	1.45
Loin, including flank and kidney	17.6	60.3	1.66

1/ Based on Prime, Choice, and Good yield Grade B carcasses.

2/ USDA boning practice--cuts trimmed to  $\frac{1}{4}$  inch of fat.

3/ Pluck out--heart, lungs, trachea, and esophagus have been removed.

Table 17--Edible offal: Relationship between procurement and product weights

Product	Factors for converting to equivalent weight of edible offal <u>1/</u>
Brains	1
Cheek meat	1
Head meat	1
Heart	1
Kidneys <u>2/</u>	1
Liver	1
Stomach or tripe	1
Sweetbreads	1
Tail	1
Tongue	1

1/ Edible offal is defined as all edible parts from cattle, calves, hogs, and sheep that are not included in the carcass weight as carried in reported meat production by the U.S. Dept. Agr.

2/ Kidneys are usually left in beef, veal, lamb, and mutton carcasses, but they are classified as edible offal.

Table 18--Choice beef: Retail cut yields as percent of carcass weight by yield grades

Retail cut	Yield Grade				
	1	2	3	4	5
	Percent				
Rump, boneless	3.7	3.5	3.3	3.1	2.9
Inside round	4.9	4.5	4.1	3.7	3.3
Outside round	4.8	4.6	4.4	4.2	4.0
Round tip	2.7	2.6	2.5	2.4	2.3
Sirloin	9.1	8.7	8.3	7.9	7.5
Short loin	5.3	5.2	5.1	5.0	4.9
Blade chuck	9.9	9.4	8.9	8.4	7.9
Rib, short, 7 inches	6.3	6.2	6.1	6.0	5.9
Chuck arm, boneless	6.4	6.1	5.8	5.5	5.2
Brisket, boneless	2.5	2.3	2.1	1.9	1.7
Flank, steak	.5	.5	.5	.5	.5
Lean trim	12.3	11.3	10.3	9.3	8.3
Ground beef	13.3	12.2	11.1	10.0	8.9
Kidney	.3	.3	.3	.3	.3
Total salable retail cuts	82.0	77.4	72.8	68.2	63.6
Fat	7.6	12.7	17.8	22.9	28.0
Bone	10.4	9.9	9.4	8.9	8.4
Total	100.0	100.0	100.0	100.0	100.0

Table 19--Beef, cured, corned, pickled, dried, or dehydrated: Relationship between procurement and carcass weights

Product	Factors for determining equivalent carcass weight
Boneless beef:	
Cured, corned, or pickled: <u>1/</u>	
Brisket or corned beef, unspecified	1.12
Plate or family beef	1.25
Dried or chipped beef, sliced or unsliced	1.94
Dehydrated beef	4.12

1/ Based on 20-percent gain in pickling brisket from fresh weight, and 10-percent gain in pickling plate.

Table 20--Meat and meat food products, fresh or frozen: Factors for converting to equivalent carcass weight 1/

Product	Beef	Pork	Other red meat	Poultry	Variety meats
Cured:					
Beef briskets	1.34	--	--	--	--
Beef-other	1.36	--	--	--	--
Pork	--	1.16	--	--	--
Other meats	--	--	1.52	--	--
Smoked or dried or cooked:					
Hams-bone-in	--	1.00	--	--	--
Hams-bone-in, water added	--	.91	--	--	--
Hams-semi-boneless	--	1.30	--	--	--
Hams-semi-boneless, water added	--	1.18	--	--	--
Hams-boneless	--	1.63	--	--	--
Hams-boneless, water added	--	1.48	--	--	--
Hams-sectioned and formed	--	1.63	--	--	--
Hams-sectioned and formed, water added	--	1.48	--	--	--
Hams-dry cured	--	1.25	--	--	--
Pork-regular	--	1.16	--	--	--
Pork-water added	--	1.05	--	--	--
Bacon	--	1.03	--	--	--
Beef, cooked	1.7	--	--	--	--
Beef, dried	1.94	--	--	--	--
Other smoked, dried or cooked meat <u>2/</u>	--	--	--	--	--
Sausage:					
Fresh beef	1.26	--	--	--	--
Fresh pork	--	1.39	--	--	--
Fresh other	.54	.69	--	--	0.07
Uncooked cured sausage	.54	.67	--	--	.07
Dried	1.36	1.12	--	--	--
Semi-dried	1.09	.82	--	--	--
Franks/weiners, regular retail	.54	.52	--	0.21	--
Franks/weiners, regular bulk	.54	.52	--	.21	--
Franks/weiners, with extenders, retail	.52	.51	--	.21	--
Franks/weiners, with extenders, bulk	.52	.51	--	.21	--
Franks/weiners, with variety meat, retail	.34	.30	--	.21	.30
Franks/weiners, with variety meat, bulk	.34	.30	--	.21	.30
Franks/weiners, with extenders and variety meats, retail	.29	.30	--	.21	.30
Franks, weiners with extenders and variety meats, bulk	.29	.30	--	.21	.30
Bologna-regular	.54	.52	--	.21	--
Bologna-with extenders	.52	.51	--	.21	--
Bologna-with variety meats	.34	.30	--	.21	.30
Bologna-with variety meats and extenders	.29	.30	--	.21	.30
Liver sausage and braunschweiger	.27	.30	--	--	.50
Other	.34	.52	.03	.21	.10
Fresh/frozen product:					
Steaks, chops (chopped/formed)	1.36	--	--	--	--
Hamburger/ground beef	1.35	--	--	--	--
Other-fresh/frozen	1.35	--	--	--	--
Convenience foods (frozen and unfrozen):					
Pizza	.12	.04	--	--	--
Pies	.31	.03	--	--	--
Dinners	.16	.15	--	--	--
Entrees	.34	.37	--	--	--
Others	.20	.15	--	--	--
Miscellaneous meat product:					
Cured meat loaves	.54	.77	--	--	--
Nonspecific loaves	.34	.52	.03	.21	.10
Meat patties	.82	.07	--	.11	.05
Other formulated products	.50	.22	.03	.19	.09

-- = Not applicable.

1/ Based on product standards for processed items under Federal inspection and meat yield from carcasses provided by Agr. Mktg. Serv., U.S. Dept. Agr. 2/ Variable.

Table 21--Canned meat and meat food products: Factors for converting to equivalent carcass weight 1/

Canned meat products	: Beef	: Pork	: Other : : red : : meats :	: Poultry	: Vari- : ety : meats
Luncheon meat	: 0.41	0.77	--	--	0.10
Chile con carne	: .52	.01	--	0.02	--
Meat stew	: .33	.01	--	--	--
Hash product	: .67	--	--	--	--
Pasta meat product	: .16	--	--	--	--
Canned hams:	:				
Under 3 lbs.	: --	1.51	--	--	--
3-6 lbs.	: --	1.51	--	--	--
Over 6 lbs.	: --	1.51	--	--	--
Pork shoulder, picnics, and loins	: --	1.38	--	--	--
Viennas	: .33	.75	0.02	.21	--
Franks and weiners	: .54	.52	--	.21	--
Miscellaneous sausage products	: .34	.60	--	.21	.10
Deviled ham	: --	1.55	--	--	--
Potted meat food products and spreads	: .04	.15	--	.04	.80
Tamales	: .30	--	--	--	--
Sliced dried beef	: 1.94	--	--	--	--
Chopped beef hamburgers	: 1.33	--	--	--	--
Vinegar pickled products	: .27	1.12	--	--	--
Byproducts, other than pickled	: --	--	--	--	.98
Corned beef	: 1.69	--	--	--	.07
Soup	: .13	--	--	--	--
All other:	:				
With 20 percent or more meat	: .27	.30	.02	--	.09
Less than 20 percent meat	: .05	.06	.01	--	.005

-- = Not available.

1/ Based on product standards for processed items under Federal inspection provided by Animal and Plant Health Inspection Service and meat yields from carcasses provided by Agr. Mktg. Serv., U.S. Dept. Agr.

Table 22--Commercial meat and meat products imports: Factors for obtaining carcass weight equivalents

Product	Commodity number <u>1/</u>	Factors
Beef:		
Fresh or chilled	106.1020	1.00
Frozen	106.1040	1.00
Boneless	106.1060	1.36
Sausage canned	107.2000	1.26
Sausage not canned	107.2520	1.26
Corned beef canned	107.4820 & 107.4840	1.79
Canned beef	107.5220 & 107.5240	1.90
Beef or veal, cured or pickled	107.4000 & 107.4500	1.79
Beef or veal, prepared or preserved, except sausage	107.5500	1.36
	107.6020	1.36
	107.6040	1.94
Veal:		
Fresh, chilled, or frozen	106.1080	1.00
Pork:		
Fresh or chilled	106.4020	1.00
Frozen	106.4040	1.00
Fresh sausage	107.1000	1.39
Canned sausage	107.1500	1.37
Hams and shoulders not cooked, canned, or boned	107.3020	1.00
Bacon not cooked	107.3040	1.03
Other prepared or preserved	107.3060	1.16
Canned hams and shoulders	107.3515 & 107.3525	1.51
Canned bacon	107.3540	1.03
Other canned	107.3560	1.39
Lamb, mutton, and goat: <u>2/</u>		
Fresh, chilled, or frozen		
Lamb	106.3000	1.00
Mutton	106.2020	1.52
Goat	106.2040	1.64
Prepared and processed	107.7520	1.52
Other sausages and mixtures	107.2540 & 107.7540	
Beef		.54
Pork		.77
Edible offals	106.8000 & 106.8500	1.00
	107.7000, and 107.7560	

1/ Commodity numbers are from import schedule A, U.S. Dept. Comm.

2/ Most of the mutton and goat is boneless meat.

Table 23--Commercial meat and meat product exports: Factors for obtaining carcass weight equivalents

Product	Commodity numbers	Factors
	<u>1/</u>	
Beef:		
Fresh or chilled:		
With bone	106.1025	1.00
Without bone	106.1060	1.43
Retail cuts	107.3820	1.37
Canned	107.4200	.88
Other	107.4600	.79
Veal:		
Fresh or chilled	106.1080	1.00
Retail cuts	107.3840	1.06
Pork:		
Fresh or chilled		
Carcasses	106.4020	1.00
Hams and shoulders	106.4040	1.11
Other	106.4060	1.47
Retail cuts	107.3715	1.03
Canned	107.3725	1.46
Bacon	107.3740	1.03
Hams and shoulders	107.3750	1.30
Other	107.3770	1.16
Lamb and mutton:		
Fresh or chilled	106.2500	1.00
Goat:		
Fresh or chilled	106.5200	.08
Sausage and similar products	107.0100 & 107.0200	
Beef		.41
Pork		.66
Edible offal		.05
Other meat and edible offal:		
Fresh or chilled	107.6200	1.00
Canned and other	107.6400 & 107.6600	
Beef		.02
Pork		.08
Edible offal		.89
Edible offal:		
Beef:		
Tongues	106.8200	1.00
Livers	106.8400	1.00
Other	106.8600	1.00
Veal	106.8800	1.00
Sheep and lamb	106.9000	1.00
Pork:		
Livers	106.9200	1.00
Other	106.9400	1.00
Other	106.9600	1.00

1/ Commodity numbers are from export schedule B, U.S. Department of Commerce.

# Poultry

Table 1.---Poultry average live weight and ready-to-cook yield, 1973-75 1/

Poultry	Average live weight				Yield, live to ready-to-cook <u>2/</u>			
	1973	1974	1975	1973-75 weighted average	1973	1974	1975	1973-75 weighted average
	Pounds				Percent			
Chickens:								
Young	3.73	3.79	3.76	3.76	71.70	71.97	72.53	72.07
Mature	4.39	4.40	4.27	4.36	62.57	62.86	62.99	62.80
All	3.78	3.83	3.79	3.80	2/71.05	71.32	71.92	71.43
Turkeys:								
Fryer-roaster	9.05	9.13	9.20	9.13	77.74	78.54	78.99	78.42
Young	19.52	19.49	19.13	19.38	78.99	78.94	79.35	79.09
Old	19.34	19.53	19.69	19.52	77.96	78.58	77.98	78.20
All	18.42	18.35	18.11	18.30	78.91	78.91	79.32	79.04
Ducks	6.29	6.27	6.25	6.27	71.20	71.07	69.96	70.74
Geese	13.13	13.14	13.05	13.11	70.36	69.45	69.29	69.69

1/ Based on total poultry slaughtered under Federal regulation.

2/ Yield of ready-to-cook weight, including neck and giblets, as a percentage of total live weight inspected.

Table 25--Broiler parts: Weight in relationship to carcass weight 1/

Part	Unit	Weight of ready-to-cook broiler carcass in ounces <u>2/</u>				
		26	30	34	38	42
Wings:						
Calculated average	Ounces	1.9	2.1	2.4	2.7	2.9
Range for 95% of parts	do.	1.6-2.1	1.9-2.4	2.1-2.7	2.4-2.9	2.7-3.2
Calculated percentage of carcass weight	Percent	6-8	6-8	6-8	6-8	6-8
Drumsticks:						
Calculated average	Ounces	2.1	2.5	2.8	3.1	3.5
Range for 95% of parts	do.	1.8-2.5	2.1-2.8	2.4-3.2	2.8-3.5	3.1-3.8
Calculated percentage of carcass weight	Percent	7-10	7-9	7-9	7-9	7-9
Thighs:						
Calculated average	Ounces	2.8	3.2	3.6	4.1	4.5
Range for 95% of parts	do.	2.2-3.3	2.7-3.7	3.1-4.2	3.5-4.6	4.0-5.1
Calculated percentage of carcass weight	Percent	9-13	9-12	9-12	9-12	9-12
Backs:						
Calculated average	Ounces	3.6	4.1	4.6	5.2	5.7
Range for 95% of parts	do.	2.8-4.4	3.3-4.9	3.8-5.4	4.4-6.0	4.9-6.5
Calculated percentage of carcass weight	Percent	11-17	11-16	11-16	12-16	12-16
Breasts:						
Calculated average	Ounces	8.4	9.7	10.9	12.2	13.5
Range for 95% of parts	do.	7.2-9.6	8.4-10.9	9.7-12.2	11.0-13.4	12.2-14.7
Calculated percentage of carcass weight	Percent	28-37	28-36	29-36	29-35	29-35
Total weight of all parts <u>3/</u>	Ounces	25.6	29.4	33.1	37.2	41.0

1/ Table based on equations in table 3, page 28 of Marketing Research Report No. 604, Relations for Weight and Sizes of Broiler Parts to Carcass Weights, U.S. Dept. Agr., in cooperation with the University of Georgia.

2/ Ice-packed carcass, weighed after giblets and neck were removed and free water was allowed to drain from carcass for about 1 minute.

3/ Total of all parts adds to less than carcass weight due to loss from evaporation and weepage (dripping). Weight loss for all carcass in the above-mentioned study was 2.27 percent.

Table 26--Broiler parts: Weights in relationship to eviscerated carcass weight

Cut	Share of carcass weight <u>1/</u>
	Percent
Breast and wing (forequarter)	25.1
Breast cuts:	
Split breast with back	17.2
Keel-cut breast	13.5
Keel portion	8.8
Wishbone-cut breast	14.8
Wishbone portion	7.1
Quartered breast:	
Anterior	10.6
Posterior	7.3
Split breast with shoulder	15.3
Split breast with ribs	15.3
Split breast (GI)	13.5
Wing cuts:	
Wing	7.4
Wing with breast portion	8.2
Wing segments:	
Proximal (first joint)	3.4
Distal (second joint)	2.8
Tips	1.9
Whole leg with back (hindquarters)	24.4
Thigh cuts:	
Thigh with back	16.6
Thigh with back portion	13.9
Thigh portion with back	11.6
Thigh with connecting fat and skin	10.9
Thigh	9.1
Thigh portion with back (from 3-piece leg)	8.9
Thigh-drumstick portion (from 3-piece leg)	9.5
Drumstick cuts:	
Drumstick	8.4
Drumstick with thigh portion	11.8
Drumstick portion (from 3-piece leg)	5.4
Back portions removed from--	
Thigh with back portion	2.8
Split breast with shoulder and thigh with connecting fat and skin	16.3
Split breast with ribs	5.3
Split breast with thigh	22.9

1/ Each percentage is the mean of 240 values.

Source: Hudspeth, J.P., Lyon, B.G., and Mercuri, A.J., Weights and Cooked Yields of Broiler Parts Related to Eviscerated Carcass Weights, ARS Rpt. S-46, U.S. Dept. Agr., Oct. 1974, p. 5.

Table 27--Turkey parts: Approximate weights and percentage of carcass 1/

Part	Cut from 7/8-pound fryer-roaster	Cut from 13/14-pound hen	Cut from 19/20-pound tom	Percentage of carcass
	Pounds			Percent
Breast, bone in	2.63	5.75	7.75	40.0
Half breast, bone in	(1.81)	(2.88)	(3.88)	--
Three-joint wing (each)	.47	.66	1.00	10.0
Two-joint wing or one- joint wingettes (each)	(.24)	(.33)	(.50)	--
Thigh, bone in (each)	.67	1.17	1.53	16.0
Drumstick, bone in (each)	.59	.78	1.17	12.0
Giblets, excluding neck	.40	.43	.69	3.5
Tail	.19	.22	.31	1.5
Soup pack, including back and neck	1.15	1.94	3.25	15.0
Cutting loss	--	--	--	2.0
Total	--	--	--	100.0

-- = Not applicable.

1/ Weights and percentage vary depending on turkey size and conformation and method of cutting.

Source: Price Schroeder, "California Turkey Industry," paper, California Banker's Short Course, Modesto, Calif., Feb. 1976.

Eggs

Table 28--Factors relating to shell eggs

U.S. weight classes for consumer grades	Minimum net weight per--		
	Case (30 dozen)		Dozen
	<u>Pounds</u>	<u>Ounces</u>	<u>Pounds</u>
Shell eggs:			
Jumbo	56.0	30	1.88
Extra large	50.5	27	1.69
Large	45.0	24	1.50
Medium	39.5	21	1.31
Small	34.0	18	1.12
Peewee	28.0	15	.94
Average weight sold at retail	47.0	25	1.57
Liquid or frozen, minimum amount approximating 1 dozen eggs			
	Whole	Yolk	Albumen
		<u>Pounds</u>	
Shell eggs:			
Jumbo	1.64	0.71	0.93
Extra large	1.48	.64	.84
Large	1.32	.57	.75
Medium	1.16	.50	.66
Small	1.00	.43	.57
Peewee	.80	.35	.47
Average weight sold at retail	1.38	.60	.78
Dried, minimum amount approximating 1 dozen eggs			
	Whole	Yolk	Albumen
		<u>Pounds</u>	
Shell eggs:			
Jumbo	0.42	0.32	0.12
Extra large	.38	.29	.11
Large	.34	.26	.10
Medium	.30	.23	.09
Small	.26	.20	.08
Peewee	.21	.16	.06
Average weight sold at retail	.35	.27	.10

Table 29--Estimated conversion factors for yields of liquid eggs and dried eggs and the moisture content of dried eggs, by types of product, 1977

Egg products	Liquid : yield from 30 : dozen shell : eggs <u>1/</u>	Yield from 1 dozen : shell eggs : Liquid egg: Dried egg : eggs <u>1/</u>	Requirements for 1 pound		Yield of dried egg		Approximate
			: of dried egg products	:	product from	:	: moisture con-
			: Liquid	: Shell eggs	: 100 pounds of	: 30 dozen	: tent of dried
			: egg <u>2/</u>	:	: liquid egg	: shell eggs	: egg product <u>3/</u>
			Pounds		Pounds		Percent
Whole eggs	39.5	1.317	.347	3.8	2.89	10.39	3-4
Albumen (flake)	22.6	.753	.099	7.6	10.09	13.16	12-16
Albumen (spray)	22.6	.753	.092	8.2	10.90	12.20	6-8
Yolk	16.9	.563	.256	2.2	3.91	45.45	3.5-4.5

Note: Data represent recent commercial experience as well as the effect of current sanitary regulations on yields of egg products.

1/ Based on: Whole eggs, 24.7 percent total egg solids; egg whites, 11 percent total egg solids; and yolks, 43 percent minimum total egg solids.

2/ Concentration factors used by U.S. Dept. Agr. for estimating the conversion of liquid to dried to check yields and volume reports.

3/ Values recommended for "Approximate Moisture Content of Dried Egg Product," Poultry Division, Agr. Mktg. Serv., U.S. Dept. Agr., letter dated Dec. 7, 1976.

# Fish and Shellfish

Table 30--Fish and shellfish: Factors relating to specified weights 1/

Product	Factors converting to--			
	Round	Reported	Dressed	Edible
	weight	weight	weight	weight
	<u>2/</u>	<u>3/</u>	<u>4/</u>	<u>5/</u>
Fish, fresh and frozen:	:	:	:	:
Not packaged, domestically produced:	:	:	:	:
Round weight	1.000	1.000	0.700	0.450
Dressed weight	1.429	--	1.000	.643
Edible weight	2.222	--	1.556	1.000
Packaged, domestically produced:	:	:	:	:
Round weight	1.000	.338	--	.338
Packaged weight	2.959	1.000	--	1.000
Imports, reported weight	1.948	1.000	1.364	.877
Shellfish, fresh and frozen:	:	:	:	:
Not packaged, including shrimp, oysters, crab, lobster, etc.:	:	:	:	:
Reported weight	--	1.000	--	.450
Edible weight	--	2.222	--	1.000
Packaged, including fresh shucked oysters, clams, shrimp, etc.	--	1.000	--	1.000
Fish, cured, all types, including smoked pickled, salted, and dried fish:	:	:	:	:
Reported weight (i.e., cured weight)	1.500	1.000	--	.750
Edible weight	2.000	1.333	--	1.000

-- = Not available.

1/ Factors are for specified groups and are not applicable to individual species.

2/ Weight of the fish as removed from the water.

3/ Production as reported to the National Marine Fisheries Service; imports as reported by the Bur. Census.

4/ Weight of fin fish after removal of entrails, head, tail, and fins.

5/ Weight of the edible portion of the fish or shellfish.

Table 31--Shellfish: Net weight per gallon

Product	:	Pounds per gallon
Clams	:	8.75
Oysters	:	8.75
Scallops	:	8.75

Table 32--Canned fish and shellfish: Net weight per standard case

Product	:	Pounds per case
Alewives	:	45
Anchovies	:	31.25
Mackerel	:	45
Salmon	:	48
Sardines:	:	
Maine	:	23.4
Pacific	:	45
Shad	:	45
Tuna and tuna-like fish:	:	
Solid	:	21
Chunks	:	19.5
Flakes and grated	:	18
Crab meat, natural	:	19.5
Shrimp, wet pack <u>1</u> /	:	6.75
Clam products:	:	
Whole and minced <u>1</u> /	:	15
Juices, chowders, broth, etc.	:	30
Oysters, natural <u>1</u> /	:	7
All other	:	48

1/ Cut out or drained weights of can contents. All others are net can contents.

Table 33--Oil-bearing materials: U.S. conversion factors relating to yield of oil and meal per unit crushed 1/

Oil-bearing material	Unit	Factors for obtaining--					
		Crude oil		Loss in refin-		Cake or meal	
		Pounds	Percent	Pounds	Percent	Pounds	Percent
Babassu kernels	Short ton	1,260	63.0	75.6	6.0	--	--
Castor beans 2/	do.	900	45.0	3/	3/	1,080	54.0
Copra (coconut oil)	do.	1,280	64.0	84.9	6.6	704	35.0
Corn germ 4/	do.	1,000	50.0	80.0	8.0	1,000	50.0
Cottonseed	do.	320	16.0	23.0	7.2	910	45.4
Flaxseed (linseed) 5/ 6/	Bu. (56 lb.)	19.9	35.6	7/	7/	37.1	66.2
Mustard seed	Short ton	460	23.0	3/	3/	--	--
Olives	do.	300	15.0	3/	3/	--	--
Palm (fresh fruit bunches)	do.	400	20.0	NA	NA	--	--
Palm kernels	do.	940	47.0	63.0	6.7	1,020	51.0
Peanuts: 6/							
Farmers' stock	do.	634	31.7	24.1	3.8	838	41.9
Shelled peanuts 8/	do.	843	42.2	32.0	3.8	1,114	55.9
Rapeseed	do.	700	35.0	NA	NA	1,200	60.0
Safflower seed	do.	720	36.0	3/	3/	1,200	60.0
Sesame seed	Bu. (56 lb.)	26.3	47.0	3/	3/	27.3	48.7
Soybeans 6/	Bu. (60 lb.)	10.7	17.9	.41	3.8	47.3	78.8
Sunflower seed, oil type	Short ton	800	40.0	NA	NA	9/1,100	9/55.0
Tung nuts (fruit basis) 10/	do.	318	15.9	3/	3/	--	--

NA = Not available. -- = Not applicable.

1/ Based on 1970-74 crop year averages for soybeans, cottonseed, flaxseed, and peanuts. 2/ Castor oil also is reported as dehydrated. To convert crude to dehydrated, multiply by 0.88; to convert dehydrated to crude, multiply by 1.136. 3/ Not customarily reported as refined oil. 4/ Includes both wet and dry processing. The wet process accounts for about 85 percent of the total crush. 5/ Total outturn per bushel of flaxseed processed may exceed 56 pounds since some mills add flaxseed screenings to the meal. 6/ See separate tables on flaxseed, peanuts, and soybeans for additional factors. 7/ Customarily, linseed oil is refined from raw (degummed) oil rather than crude. The loss in refining is about 2.5 percent. 8/ Straight run peanuts included shelled No. 1 and 2 grades and oil stock. Estimated oil content of peanuts exported averages about 43.5 percent. Some additions shells are added to residue to produce cake and meal. 9/ Includes about 36 percent meal and 19 percent hulls. 10/ 15 percent moisture.

Table 34--Vegetable oils and products: Conversion factors relating to crude and refined oils and to pounds and gallons

Oil and product	Factors for obtaining--			
	Refined oil from crude oil	Equivalent crude oil from refined oil	Pounds from gallons	Gallons from pounds
Oil:				
Babassu	0.94	1.06	7.5	0.133
Castor	$\frac{1}{1}$	$\frac{1}{1}$	8.0	.125
Coconut	.93	1.08	7.5	.133
Corn	.92	1.09	7.7	.130
Cottonseed	.93	1.08	7.7	.130
Fish (menhaden)	$\frac{1}{1}$	$\frac{1}{1}$	7.7	.130
Grain screenings	$\frac{1}{1}$	$\frac{1}{1}$	7.7	.130
Linseed	$\frac{1}{1}$	$\frac{1}{1}$	7.7	.130
Murumuru	$\frac{1}{1}$	$\frac{1}{1}$	7.5	.133
Mustardseed	$\frac{1}{1}$	$\frac{1}{1}$	7.7	.130
Oiticica	$\frac{1}{1}$	$\frac{1}{1}$	7.8	.128
Olive	$\frac{1}{1}$	$\frac{1}{1}$	7.6	.132
Ouricuri	$\frac{1}{1}$	$\frac{1}{1}$	7.5	.133
Palm	.93	1.08	7.7	.130
Palm kernel	.93	1.08	7.5	.133
Peanut	.96	1.04	7.7	.130
Perilla	$\frac{1}{1}$	$\frac{1}{1}$	7.7	.130
Rapeseed	$\frac{1}{1}$	$\frac{1}{1}$	7.7	.130
Safflower	$\frac{1}{1}$	$\frac{1}{1}$	7.7	.130
Sesame seed	$\frac{1}{1}$	$\frac{1}{1}$	7.7	.130
Soybean	.96	1.04	7.7	.130
Sunflower seed	$\frac{1}{1}$	$\frac{1}{1}$	7.7	.130
Tucum	$\frac{1}{1}$	$\frac{1}{1}$	7.5	.133
Tung	$\frac{1}{1}$	$\frac{1}{1}$	7.8	.128
Product:				
Cooking and salad oils	--	--	7.4	.135
French dressing	--	--	8.7	.115
Mayonnaise	--	--	8.0	.125
Oil and vinegar dressing	--	--	8.4	.119
Salad dressing	--	--	8.7	.115
Sandwich spread	--	--	8.7	.115

-- = Not available.

$\frac{1}{1}$  / Not customarily reported as refined oil.

Additional factors: A standard tank car usually contains about 60,000 pounds or 8,000 gallons of oil. A jumbo tank car usually contains about 150,000 pounds or 20,000 gallons of oil. A standard size oil-drum contains 55 gallons of oil.

Table 35--U.S. oilseeds: Average yield per harvested acre 1/

Oil-bearing material	:	Average yield	:	Crude oil produced	:	Cake and meal produced
	:		:		:	
	:	Bushels <u>2/</u>	- - - - -	Pounds	- - - - -	
Cottonseed	:	<u>3/</u> 770		125		350
Flaxseed	:	10.4 580		205		385
Peanuts (farmers' stock)	:	<u>3/</u> 2,225		705		930
Safflowers	:	<u>3/</u> 1,890		680		1,135
Soybeans	:	26.6 1,595		285		1,255
Sunflowers (oil type)	:	<u>3/</u> <u>4/</u> 1,310		525		720

1/ Yields of oilseeds are 5-year averages, 1970-74. Yields of oil and cake or meal are based on the 5-year average yields of oilseeds converted to oil and cake or meal equivalents on the basis of 5-year, 1970-74, crop year average percentage outturns, as follows:

Oil outturn: Cottonseed, 16.0 percent; flaxseed (linseed oil), 35.6 percent; peanuts, 31.7 percent; safflowers, 36.0 percent; soybeans, 17.9 percent; and sunflowers, 40.0 percent.

Cake or meal outturns: Cottonseed, 45.4 percent; linseed, 66.2 percent; peanuts, 41.9 percent; safflowers, 60.0 percent; soybeans, 78.8 percent; and sunflowers, 55.0 percent.

2/ Bushel weight: Flaxseed, 56 pounds; and soybeans, 60 pounds.

3/ Usually reported in short tons.

4/ Average for 1977 and 1978 crops due to introduction of hybrids.

Table 36--Fat and oil products: Approximate serving size quantity  
to purchase 100 servings, and measures

Product	: : Serving size :	: : Quantity to : purchase for : 100 servings :	: : Measure :
Table fat, butter or margarine	: : 1 teaspoon	: : 1.04 pounds	: : 1 pound - 2 cups
Salad dressing, mayonnaise or French	: : 1 tablespoon	: : 1.60 quarts	: : 1 gallon = 8 pounds
Peanut butter	: : 4 tablespoons	: : 14.10 pounds	: : 1 pound = 1 3/4 cups
Peanuts, roasted, shelled, and chopped	: : 4 tablespoons : (1.6 ounces)	: : 10.00 pounds	: : 1 pound = 2 1/2 cups

Source: Food Buying Guide for Type A School Lunches, 1972, Food Nutr.  
Serv., U.S. Dept. Agr.

Table 37--Conversion factors for obtaining fat content  
of selected foods based on fat analysis

Product	Factors
Edible fats and oils:	
Butter	0.81
Margarine	.81
Cooking and salad oils	1.00
Lard	1.00
Oleo stock and oleo stearin	1.00
Shortening	1.00
Other foods:	
Custard or pudding	.05
French fries	.13
French fries, frozen	.06
French fries, frozen, heated	.08
French dressing	.39
Italian dressing	.60
Mayonnaise	.80
Peanuts, salted <u>1</u> /	.48
Peanut butter	.50
Potato chips and shoestring potatoes	.40
Salad dressing	.42
Sandwich spread	.36
Dairy products and substitutes:	
Ice cream	.11
Coffee whitener (creamer), dry	.27
Cream, light <u>2</u> /	.18
Half and half <u>2</u> /	.11
Mellorine <u>3</u> /	.08
Milk <u>2</u> /	.034
Whipped cream, heavy	.38
Baking mixes, dry form:	
Biscuit	.13
Cake, white	.12
Gingerbread	.10
Pie crust	.33
Baked goods:	
Biscuits	.17
Bread, white	.03
Cake, white	.16
Cookies, assorted	.20
Crackers, saltines	.12
Doughnuts, cake type	.19
Doughnuts, yeast type	.27
Pies, assorted	.11
Pizza, with cheese	.08
Pretzels	.05
Rolls, plain pan rolls	.06

1/ The unroasted peanut contains from 45 to 50 percent fat. Approximately 2 percent fat is added during the roasting process. 2/ Based on milk marketing order data.

3/ Fat content varies based on State laws.

Source: Composition of Foods, Agr. Handb. 8, and based on data in Nutritive Value of American Foods, Agr. Hdbk. 456, Agr. Res. Serv., U.S. Dept. Agr.

Table 38--Fat content and major fatty acid composition of selected foods

Food	Total fat	Fatty acids 1/ Saturated: Unsaturated		
		2/ : Oleic : Linoleic		
		Percent		
Salad and cooking oils:	:			
Safflower	: 100	10	13	74
Sunflower, oil type, northern	: 100	11	14	70
Corn	: 100	13	26	55
Cottonseed	: 100	23	17	54
Soybean <u>3/</u>	: 100	14	25	50
Sesame	: 100	14	38	42
Soybean, specially processed	: 100	11	29	31
Peanut	: 100	18	47	29
Palm <u>4/</u>	: 100	45	40	8
Olive	: 100	11	76	7
Coconut	: 100	80	5	1
Vegetable fats-shortening	: 100	23	23	6-23
Table spreads:	:			
Margarine, first ingredient on label: <u>5/6/</u>	:			
Safflower oil (liquid), tub	: 80	11	18	48
Corn oil (liquid), tub	: 80	14	26	38
Soybean oil (liquid), tub <u>7/</u>	: 80	15	31	33
Corn oil (liquid), stick	: 80	15	33	29
Soybean oil (liquid), stick <u>7/</u>	: 80	15	40	25
Cottonseed or soybean oil partially hydrogenated, tub <u>7/</u>	: 80	16	52	13
Butter	: 81	46	27	2
Animal fats:	:			
Poultry	: 100	30	40	20
Lard <u>4/</u>	: 100	38	46	10
Beef, lamb, and pork	: 100	45	44	2-6
Fish, raw: <u>7/</u>	:			
Salmon	: 9	2	2	4
Tuna	: 5	2	1	2
Mackerel	: 13	5	3	4
Herring, Pacific	: 13	4	2	3
Nuts:	:			
Walnuts, English	: 64	4	10	40
Walnuts, black	: 60	4	21	28
Brazil	: 67	13	32	17
Peanuts or peanut butter	: 51	9	25	14
Pecan	: 65	4-6	33-48	9-24
Egg yolk	: 31	10	13	2
Avocado	: 16	3	7	2

1/ Total is not expected to equal "Total fat."

2/ Includes fatty acids with chains from 8 through 18 carbon atoms.

3/ Suitable as salad oil.

4/ From Fatty Acids in Food Fats, Home Econ. Res. Rpt. 7, Agr. Res. Serv., U.S. Dept. Agr., 1959.

5/ Mean values of selected samples and may vary with brand name and date of manufacture.

6/ Includes small amounts of mono-unsaturated and di-unsaturated fatty acids that are not oleic or linoleic.

7/ Linoleic acid includes higher polyunsaturated fatty acids.

Source: Fats in Food and Diet, AIB-361, U.S. Dept. Agr.

Table 39--Soybean products: Factors relating to yields of selected items

Product	Factors for obtaining--				
	:	:	:	:	:
	: Pounds of	: Equivalent	: Pounds of	: Equivalent	: Pounds of
	: product from	: soybeans	: product from	: soybeans	: product from
	: pound of	: from pound	: bushel of	: from pound	: short ton of
	: soybeans	: of product	: soybeans	: of product	: soybeans
Soybean oil,	:	:	:	:	:
crude <u>1</u> /	: 0.179	5.59	10.7	0.092	358
Soybean oil,	:	:	:	:	:
refined <u>1</u> /	: .171	5.85	10.3	.098	342
Soybean cake	:	:	:	:	:
or meal,	:	:	:	:	:
44 percent	:	:	:	:	:
protein <u>1</u> /	: .788	1.27	47.3	.021	1,576
Soybean	:	:	:	:	:
Hulls <u>2</u> /	: .070	14.29	4.2	.238	140
Flour, flakes:	:	:	:	:	:
or grits:	:	:	:	:	:
Full fat	: .833	1.20	50.0	.020	1,666
Low fat	: .592	1.69	35.5	.028	1,184
Defatted,	:	:	:	:	:
indus-	:	:	:	:	:
trial	: .558	1.79	33.5	.030	1,116
	:	:	:	:	:

1/ 1970-74 crop year average. 2/ Removed when 50-percent protein meal produced.

Table 40--Flaxseed products: Factors relating to yields of selected items

Product	Factors for obtaining--				
	:	:	:	:	:
	: Pounds of	: Equivalent	: Pounds of	: Equivalent	: Pounds of
	: product from	: flaxseed	: product from	: flaxseed	: product
	: pound of	: from pound	: bushel of	: from pound	: ton of
	: flaxseed	: of product	: flaxseed	: of product	: flaxseed
Linseed oil,	:	:	:	:	:
crude <u>1</u> /	: 0.356	2.81	19.9	0.0502	712
Linseed oil,	:	:	:	:	:
refined <u>2</u> /	: .266	3.76	14.9	.0671	532
Linseed cake	:	:	:	:	:
or meal <u>1</u> /	: .662	1.51	37.1	.0270	1,324
	:	:	:	:	:

1/ 1970-74 crop year average.

2/ Customarily, linseed oil is refined from raw (degummed) oil, rather than crude. The loss in refining is about 2.5 percent.

Table 41--Conversion factors and weights for obtaining  
peanuts and peanut products

Peanuts and peanut products	Factors and weights
	<u>Factors</u>
Peanuts, unshelled: <u>1/</u>	
Cleaned unshelled stock from farmers' stock <u>2/</u>	1.00
Equivalent farmers' stock from cleaned unshelled stock <u>2/</u>	1.00
Peanuts, shelled: <u>1/</u> <u>3/</u>	
Equivalent farmers' stock from total shelled peanuts	1.33
Total shelled peanuts from farmers' stock	.7519
Shelled oil-stock peanuts from farmers' stock (oil stock pickouts and straight run ungraded peanuts)	.195
Shelled edible peanuts from farmers' stock <u>4/</u>	.556
Equivalent farmers' stock from shelled edible peanuts <u>4/</u>	1.80
Peanut butter:	
Peanut butter from farmers' stock peanuts	.528
Equivalent farmers' stock peanuts from peanut butter	1.89
Peanut butter from shelled edible peanuts <u>5/</u>	.95
Equivalent shelled edible peanuts from peanut butter	1.05
Pounds of peanut butter from short tons of farmers' stock	1.056
Equivalent short tons of farmers' stock from pounds of peanut butter	.00094
	<u>Pounds</u>
Oil, oil cake, and meal: <u>1/</u>	
Yield per short ton of farmers' stock: <u>6/</u>	
Crude peanut oil	634
Peanut cake or meal	838
Estimated product outturn per short ton of shelled peanuts crushed:	
Crude peanut oil	843
Peanut cake and meal <u>7/</u>	1,114

1/ Based on 1970-74 crop averages.

2/ Beginning 1966 crop year, farmers' stock peanuts are reported in terms of net weight so no adjustments are necessary.

3/ Excludes roasting stock.

4/ Excludes shelled oil stock peanuts.

5/ Including additives.

6/ Yields from farmers' stock are provided for statistical convenience. In actual practice, only the shelled peanuts are crushed for oil. Some of the shells are then added to the residue to produce the cake and meal.

7/ Some additional shells are added to the residue to produce cake and meal.

# Dry Edible Beans and Peas

Table 42--Factors relating to dry edible beans and peas and their products 1/

Products	Factors for obtaining--	
	Dry beans and peas from product	Products from dry beans and peas
Canned:		
Light and dark red kidney	0.262	3.81
Dry limas	.258	3.87
Garbanzos	.255	3.92
Pinto	.257	3.89
Blackeye peas	.267	3.74
Navy (pea)	.287	3.49
Red beans	.272	3.68
Black turtle soup	.306	3.27
Great Northern (small white)	.258	3.88
Dried peas (whole)	.250	4.00
Dehydrated:		
Green pea soup	.611	1.64

1/ Data from four canners.

# Wheat and Wheat Products

Table 43--Factors relating to whole grain and processed wheat

Commodity	Unit	Factors for converting--	
		Units of wheat to pounds of commodity	Units of commodity to bushels of wheat
Wheat, whole grain	Pound	1.0	0.01667
	Bushel	60.0	1.0
	Short ton	2,000.0	33.33
	Metric ton	2,204.622	36.744
	Long ton	2,240.0	37.33
White flour	Pound	.730	.0228
	100-pound sack	73.00	2.283
	Bushel	43.80	--
	Short ton	1,460.0	45.66
	Metric ton	1,609.4	50.33
Semolina or farina <u>1/</u>	Long ton	1,635.2	51.14
	Pound	.58	.0287
	100-pound sack	58.00	2.874
	Bushel	34.80	--
	Short ton	1,160.0	57.47
Whole wheat flour or cracked wheat	Metric ton	1,278.7	63.35
	Long ton	1,299.2	64.37
	Pound	.980	.01701
	100-pound sack	98.0	1.700
	Bushel	58.8	--
Wheat meal or whole wheat meal	Short ton	1,960.0	34.01
	Metric ton	2,160.5	37.49
	Long ton	2,195.2	38.09
	Pound	.990	.01684
	100-pound sack	99.0	1.684
	Bushel	59.4	--
	Short ton	1,980.0	33.67
	Metric ton	2,182.6	37.12
	Long ton	2,217.6	37.71

-- = Not applicable.

1/ At a 73-percent extraction rate, semolina and farina comprise approximately 58 percent and flour 15 percent.

Table 44—Factors relating to wheat and white flour content of specified products <sup>1/</sup>

Product	Factors for converting --			
	: Bushels of wheat to : pounds of product	: Pounds of white flour : to bushels of wheat	: Pounds of product to : pounds of white flour	: Pounds of product to : pounds of white flour
Baked goods: <sup>2/</sup>	:	:	:	:
Bread:	:	:	:	:
Brown	: 109.5	0.0091	2.50	0.40
Cracked wheat (18 percent cracked wheat flour)	: 81.5	.0123	1.86	.54
Hearth and hard rolls	: 66.1	.0150	1.51	.66
Raisin	: 112.6	.0089	2.57	.39
Rye (20 percent rye flour)	: 76.6	.0130	1.75	.57
White pan	: 69.2	.0144	1.58	.63
Whole wheat (100 percent whole wheat flour)	: 93.3	.0107	--	--
Cake, medium rich formula:	:	:	:	:
Angel food	: 261.1	.0039	5.96	.17
Chocolate	: 190.1	.0053	4.34	.23
Fruit	: 446.8	.0023	10.2	.10
Pound, yellow and rich	: 184.0	.0055	4.2	.24
White and yellow	: 171.3	.0059	3.91	.26
Cookies:	:	:	:	:
Bars (military)	: 112.1	.0089	2.56	.39
Sandwich	: 99.4	.0100	2.27	.44
Fig bars	: 168.6	.0059	3.85	.26
Wafers, vanilla or butter and other	: 109.5	.0091	2.50	.40
Crackers:	:	:	:	:
Crackers (military)	: 48.2	.0207	1.10	.91
Soda, saltines, oysterettes	: 43.8	.0228	1.00	1.00
Graham, 14 percent whole wheat flour	: 79.7	.0125	1.82	.55
Pretzels or pilot bread	: 45.1	.0221	1.03	.97
Doughnuts:	:	:	:	:
Cake	: 106.8	.0093	2.44	.41
Yeast-raised	: 83.2	.0121	1.9	.53
Rolls, soft	: 70.1	.0141	1.60	.62
Sweet baked foods, yeast leavened	: 106.4	.0093	2.43	.41
Flour mixes:	:	:	:	:
Bread	: 49.9	.0201	1.14	.88
Cake	: 109.5	.0091	2.50	.40
Doughnut or waffle	: 66.6	.0150	1.52	.66
Pancake	: 97.2	.0101	2.22	.45
Macaroni and noodle products:	:	:	:	:
Macaroni or spaghetti	: 42.0	.0237	<sup>3/</sup> .96	1.04
Noodles, 5.5 percent egg or egg yolk solids	: 44.7	.0222	1.02	.98
Spaghetti, canned	: 109.5	.0091	2.50	.40

See footnotes at end of table.

Continued--

Table 44--Factors relating to wheat and white flour content  
of specified products 1/--Continued

Product	Factors for converting--			
	Bushels of wheat to pounds of product	Pounds of product to bushels of wheat	Pounds of wheat to pounds of product	Pounds of product to pounds of wheat
Wheat cereals:	:	:	:	:
Ready-to-serve:	:	:	:	:
40 percent bran flakes	: 29	0.0345	0.49	2.04
Malted cereal, granules	: 53	.0190	.88	1.14
Malted wheat flakes	: 55	.0183	.91	1.10
Puffed wheat	: 51	.0196	.85	1.18
Shredded wheat <u>1/</u>	: 55	.0182	<u>1/</u> .92	1.09
Sugar-coated wheat cereal	: 103	.0097	1.72	.58
Premixed cereal <u>4/</u>	: 240	.0042	4.00	.25
Precooked, infant-type mixed cereal	: 120	.0083	2.00	.50
Wheat flakes	: 65	.0154	1.08	.93
Uncooked and quick-cooking:	:	:	:	:
Bulgur	: 52	.0192	.87	1.15
Rolled wheat	: 56	.0180	.93	1.08
Whole wheat meal	: 59	.0169	.98	1.02

-- = Not applicable.

1/ All factors are based on 60 pounds of wheat per bushel except for shredded wheat cereal which is based on 54 pounds per bushel.

2/ Baked and finished weight.

3/ About 4-percent moisture loss below flour's normal moisture content.

4/ Premixed cereal is ready to eat.

# Corn and Corn Products

Table 45--Factors relating to corn content of specified products 1/

Product	Factors for converting--			
	: Bushels of : : corn to : : pounds of : : product	: Pounds of : : product : : to bushels : : of corn	: Pounds of : : corn to : : pounds of : : product	: Pounds of : : product : : to pounds : : of corn
Corn, shelled <u>2/</u>	: 56.0	0.0179	1.00	1.00
Corn meal, degermed	: 31.6	.0316	.564	1.77
Corn meal, nondegermed, regular	: 50.0	.0200	.893	1.12
Corn flour	: 33.0	.0303	.589	1.70
Corn grits or hominy grits	: 29.0	.0345	.518	1.93
Hominy, canned	: 145.0	.0069	2.589	.39
Hominy, dry	: 27.3	.0366	.488	2.05
Cornstarch, 10 percent moisture <u>3/</u>	: 34.4	.0291	.614	1.63
Cornstarch, pearl, 12 percent moisture or laundry starch <u>3/</u>	: 35.2	.0284	.629	1.59
Corn sugar:	:	:	:	:
Dextrose, hydrate, 8 percent moisture	: 30.0	.0333	.536	1.87
Dextrose, anhydrous, moisture free <u>4/</u>	: 27.5	.0364	.491	2.04
Corn sirup, 43° Baume, 19.73 percent moisture, 42 percent dextrose equivalent <u>3/</u>	: 37.6	.0266	.672	1.49
Corn flakes or corn cereal	: 21.5	.0465	.384	2.60
Corn-soya cereal <u>5/</u>	: 33.6	.0297	.60	1.66
Precooked infant-type mixed cereal	: 500.0	.0020	8.929	.11
Premixed cereal	: 101.8	.0098	1.818	.55
Pancake mix	: 330.0	.0030	5.882	.17
Pudding powder, 33 percent cornstarch	: 103.8	.0096	1.854	.54
Chocolate pudding powder, 18 percent cornstarch	: 186.6	.0054	3.333	.30
Corn snacks	: 67.5	.0148	.830	.1205
Corn oil:	:	:	:	:
Refined	: 1.6	.625	.0286	35.0
Crude	: 1.8	.556	.0321	31.1
Corn feeds, gluten feed, gluten meal, and corn oil meal or cake <u>6/</u>	: 14.9	.0671	.266	3.76
Hominy feed	: 20.0	.050	.357	2.80

1/ All factors are based on 56 pounds of shelled corn per bushel. Product spectrum varies with corn milled and product mix sought. Factors presented are based on maximum yield of product. 2/ Five bushels of shelled corn = 1 barrel; 10 bushels of ear corn = 1 barrel; 70 pounds of ear corn = 1 bushel of shelled corn. 3/ From 17-percent moisture corn. 4/ Based on continued reprocessing of uncrystallized dextrose liquors. 5/ Corn-soya cereal contains approximately 34 percent soya flour. 6/ Conversion factors cover all corn feeds combined. Data are not available to show separate components of corn feeds, though gluten feed is generally about 55-60 percent of total corn feeds, gluten meal around 40 percent, and corn oil meal only about 2 percent.

### Oats and Oat Products

Table 46--Factors relating to oat content of specified products

Product	Factors for converting--				
	Bushels of	Pounds of	Pounds of	Pounds of	Pounds of
	oats to	product	oats to	product	product
	pounds of	to bushels	pounds of	to pounds	to pounds
	product	of oats	product	of oats	of oats
<u>32-pound bushel</u>					
Oats, unprocessed	32.0	0.03125	1.0		1.0
Oat flour	20.3	.04926	.634		1.577
Rolled oats or oatmeal:					
Quick cooking or regular	18.5	.05405	.579		1.730
Ready-to-eat cereal	20.5	.04878	.641		1.560
Precooked infant-type cereal	100.1	.010	3.128		.320
<u>38-pound bushel 1/</u>					
Oats, unprocessed	38.0	.02632	1.0		1.0
Oat flour	24.1	.04149	.634		1.577
Rolled oats or oatmeal:					
Quick cooking or regular	22.0	.04545	.579		1.730
Ready-to-eat cereal	24.3	.04115	.641		1.560
Precooked infant-type cereal	118.9	.0084	3.128		.320

1/ This bushel weight represents the bulk of the oats processed for human food.

### Barley and Barley Products

Table 47--Factors relating to barley and malt content of specified products

Product	Factors for converting--				
	Bushels	Pounds of	Pounds of	Pounds of	Pounds of
	of barley	product	barley to	product	product
	to pounds	to bushels	pounds of	to pounds	to pounds
	of product	of barley	product	of barley	of malt
Barley, unprocessed	48	0.02083	1.000	1.000	1.412
Barley flour	25	.04166	.500	2.000	--
Pearl barley	29	.03448	.604	1.655	--
Malt	34	.02941	.708	1.412	1.000
Malt syrups and malt extract	26	.03846	.542	1.846	.764

-- = Not applicable.

# Rye and Rye Products

Table 48--Factors relating to rye content of specified products

Product	:	Factors for converting--						
	:	Bushels of	:	Pounds of	:	Pounds of	:	Pounds of
	:	rye to	:	product to	:	rye to	:	product to
	:	pounds of	:	bushels of	:	pounds of	:	pounds of
	:	product	:	rye	:	product	:	rye
Rye, unprocessed or rolled	:	56.0		0.0179		1.00		1.00
Rye flour	:	44.8		.0223		.80		1.250
Rye bread, 20 percent rye	:							
flour	:	224.0		.0045		4.00		.250
Pancake mix, 5 percent rye	:							
flour	:	903.2		.0011		16.13		.062
Rye malt	:	40.0		.0250		.71		1.400
	:							

# Buckwheat and Buckwheat Products

Table 49--Factors relating to buckwheat content of specified products

Product	:	Factors for converting--				
	:	Bushels of	:	Pounds of	:	Pounds of
	:	buckwheat	:	product to	:	buckwheat
	:	to pounds	:	bushels of	:	product to
	:	of product	:	buckwheat	:	pounds of
	:		:	of product	:	buckwheat
Buckwheat, unprocessed	:	48.0		0.0208		1.00
Buckwheat flour	:	28.8		.0347		.60
Buckwheat cereals	:	22.3		.0448		.46
Buckwheat pancake mix,	:					2.15
42 percent buckwheat	:					
flour	:	68.6		.0146		1.43
	:					.70

# Rice and Rice Products

Table 50--Factors relating to rice content of specified products 1/

Product	Factors for converting--			
	Hundredweight	Pounds of	Pounds of	Pounds of
	of rough rice	product to	milled rice	product to
	to pounds	hundredweight	to pounds	pounds of
	of product	of rough rice	of product	milled rice
Rice, rough	100.0	0.01000	1.5038	0.6650
Brown	82.0	.01220	1.2330	.8110
Milled <u>2/</u>	66.5	.01504	1.0000	1.0000
Brewers	3.0	.33333	.0451	22.1667
Bran	10.9	.09174	.1639	6.1009
Polish	1.6	.62500	.0241	41.5625
Rice grits	69.5	.01439	1.0451	.9568
Rice flour	64.2	.01558	.9654	1.0358
Rice starch	49.1	.02037	.7383	1.3544
Precooked rice	63.9	.01565	.9609	1.0407
Dehydrated precooked rice	60.5	.01653	.9098	1.0992
Rice cereals, ready-to-serve:				
Puffed rice	66.5	.01504	1.0000	1.0000
Rice flakes	61.2	.01634	.9203	1.0866

1/ Rice conversion factors vary substantially depending on the type and variety of rice milled. These data are based on national averages over a period of time and are not a perfect measure of any crop's milling yield.

2/ Excluding brewers' rice.

Note: Miscellaneous factors relating to rice:

- 1 bushel rough rice equals 45 pounds
- 1 hundredweight rough rice equals 100 pounds  
or 2.22 bushels
- 1 barrel rough rice equals 162 pounds  
or 3.6 bushels

## Grain Sorghum and Grain Sorghum Products

Table 51--Factors relating to grain sorghum content of specified products

Product	Factors for converting--			
	: Hundred- : weight : of grain : sorghum : to pounds : of product	: Pounds of : product to : hundred- : weight of : grain : sorghum	: Pounds of : grain : sorghum : to pounds : of : product	: Pounds of : product : to : pounds : of grain : sorghum
Grain sorghum, unprocessed	: 100.0	: 0.0100	: 1.000	: 1.00
Grain sorghum starch, 10 percent moisture <u>1/</u>	: 61.7	: .0162	: .617	: 1.62
Grain sorghum starch, pearl or laundry starch, 12 percent moisture <u>1/</u>	: 63.1	: .0158	: .631	: 1.58
Dextrose, crystalline <u>2/</u>	: 54.4	: .0184	: .544	: 1.84
Grain sorghum feeds, gluten feed, gluten meal, and grain sorghum oil meal or cake, 12 percent moisture	: 35.0	: .0286	: .350	: 2.86

1/ Starch calculated at 89.5 percent recovery.

2/ Assumes complete conversion of starch to dextrose.

## Sugar, Beet and Cane

Many products contain not only beet or cane sugar but also other sweeteners, such as conventional corn sirup, high fructose corn sirup, dextrose (corn sugar), honey, or molasses. The conversion factors refer to typical beet or cane sugar content. In view of substitutability, products may contain a smaller or larger proportion of beet or cane sugar than those indicated. Other sweeteners are particularly important in the manufacture of candy.

Table 52--Raw sugar content of specified sugar products

Product	Sugar in specified units of product <u>1/</u>	
	: Raw value	: Refined sugar
	Pounds	
Sugar, granulated	: 1.070	: 1.00
Lump sugar	: 1.070	: 1.00
Brown sugar	: .963	: .90
Powdered sugar <u>2/</u>	: 1.038	: .97
Invert sugar	: .856	: .80
Invert sirup	:	:
Medium invert	: .790	: .74
High invert	: .740	: .69
Sucrose sirup	: .690	: .64

1/ Raw value of any quantity of sugars is equivalent to raw sugar testing 96° by the polariscope as defined in the Sugar Act of 1948, as amended.

2/ Powdered sugar on the average contains about 3 percent cornstarch to prevent lumping.

Table 53--Refined beet and cane sugar in confectionery products

Product	Percentage of refined sugar in product
Confections: <u>1/</u>	
Candy:	
Uncoated candies:	
Caramels	30 - 45
Creams, candy corn, crystallized creams, etc.	70
Grained mint types, so-called pure sugar	90
Fudges	40 - 45
Hard candies such as fruit drops, Christmas candies, etc.	50 - 75
Jellies, soft, sugar-sanded	45
Jellies, jube jel	35
Lozenges, sugar wafers and pressed tablets	90
Marshmallows	45
Marshmallows, grain, circus peanuts, etc.	57
Nougats	40
Taffy, English-type	50
Taffy, wrapped	25
Sugar-panned candies:	
Jelly beans and related products	60
Caramels	60
Chocolate centers	65
Creams	70
Fudges	75
Hard candies such as cinnamon drops	70
Marshmallows	80
Peanut and nut meats	50
Chocolate-coated candies:	
Brittles, nut or peanut	50
Caramels	35
Creams, assorted	60
Fruits such as cordial cherries	60
Fudges	52
Jellies	25 - 50
Marshmallows	45
Nougats	45
Peanuts and nut meats	40
Bars, uncoated:	
Nougats, taffy, caramels, jelly, etc.	40
Peanut brittle	30 - 67
Solid chocolate, stars, etc:	
Bittersweet chocolate	40
Sweet chocolate	50
Milk chocolate	55
Coated bars--chocolate or confectioners coatings:	
Caramel-nougat	45
Coconut	40
Creamed	65
Fudge	52
Marshmallows	52
Nougats	48

See footnote at end of table.

Continued--

Table 53--Refined beet and cane sugar in confectionery products--Continued

Product	:	Percentage of refined sugar in product
Confections--Continued:	:	
Candy--Continued:	:	
Peanut brittle	:	50
Peanut or nut roll bar	:	35
Novelty chocolate bars:	:	
Almond	:	40
Cereal	:	40
Peanut	:	40
Miscellaneous candy:	:	
Chocolate	:	38
Nonchocolate	:	52
Unspecified	:	45
Chewing gum	:	56
Chocolate, sweetened cooking	:	50
Cocoa, beverage powder (military)	:	52
Fruit peel, candied	:	70
Popcorn, candied	:	60

1/ The sugar content of confections may vary as much as 10 percent from the indicated figures.

Table 54--Refined beet and cane sugar content of specified products

Product	Unit	Pounds of refined sugar per unit of product
Dairy products:		
Chocolate milk	: Pound	: .05 - .07
Condensed milk, sweetened	: do.	: .42
	: 48 14 ounce cans	: 17.64
Condensed skim milk, sweetened	: Pound	: .40
Ice cream	: do.	: .15
	: Gallon (4.7 pounds)	: .70
Ice cream mix:		
Paste	: Pound	: .36
Powder	: do.	: .40
Sherbet	: do.	: .28
Water ice	: do.	: .29
Dessert powders:		
Custard or starch pudding powder	: do.	: .61
Gelatin-base powders	: do.	: .85
Fountain sirups and soft drinks:		
Beverage powders, synthetic lemon or orange <u>1</u> / <sub>2</sub>	: --	: --
Butterscotch or marshmallow topping	: Pound	: .40
	: Gallon (11 pounds)	: 4.40
	: 6 No. 10 cans	: 19.80
Chocolate sirup for topping	: Pound	: .26
	: Gallon (11 pounds)	: 2.86
	: 6 No. 10 cans	: 12.87
Chocolate sirup for beverages	: Pound	: .38
	: Gallon (10.27 pounds)	: 3.90
	: 6 No. 10 cans	: 17.55
Cola, clear fruit or other soft drink sirups	: Pound	: .55
	: Gallon (10.5 pounds)	: 5.80
Cola-type soft drinks, bottled	: Pound	: .10
	: Gallon (8.65 pounds)	: .866
	: 24 7 ounce bottles	: 1.14
	: 24 12 ounce bottles	: 1.95
Fruit flavored soft drinks	: Pound	: .12
	: Gallon (8.7 pounds)	: 1.05
	: 24 7 ounce bottles	: 1.37
	: 24 12 ounce bottles	: 2.36
Gingerale, bottled	: Pound	: .084
	: Gallon (8.6 pounds)	: .722
	: 24 12 ounce bottles	: 1.62
Fruit products:		
Fruit, frozen	: Pound	: .20
Fruit products, other--		
Apple butter	: do.	: .29
Jellies, jams, preserves	: do.	: .55
Marmalade	: do.	: .67
Mincement	: do.	: .35
Miscellaneous:		
Mayonnaise	: do.	: .10
	: Gallon	: .81
Pickles, sweet	: Pound	: .35
Salad dressing	: do.	: .24
	: Gallon	: 2.11

-- = Not applicable.

1/ Synthetic beverage powders are sweetened with corn sirup and dextrose.

Table 55--Sugar content of canned fruits

Canned product	:	Natural fruit sugar	:	Added refined cane and beet sugar <sup>1/</sup>	
				Weight in 24 No. 2-1/2 cans	Percent
	:	<u>Percent</u>	:	<u>Pounds</u>	<u>Percent</u>
Apricots	:	14.4	:	2.97	6.6
Cherries (sweet)	:	13.9	:	2.75	6.1
Figs	:	19.0	:	.90	2.0
Fruit cocktail	:	11.0	:	3.15	7.0
Fruit for salad	:	9.9	:	3.52	8.1
Peaches	:	11.8	:	3.13	7.2
Pears	:	11.6	:	2.78	6.4
Plums	:	14.8	:	2.79	6.2

<sup>1/</sup> Based on the finished canned product packed in heavy syrup.

Other Sugars, Sirups, and Molasses

Table 56--Net weights, sugar solids content, and total solids content  
per unit of specified products at 20° Celsius

Product	Unit <u>1/</u>	Net weight per unit	Total sugar solids content <u>2/</u>	Total solid content
			<u>Pounds</u>	
Corn sirup, regular 42° Baume:	Pound	1.00	0.78	0.783
	No. 10 can	8.88	6.92	6.95
	Gallon	11.68	9.11	9.15
Corn sugar or dextrose (hydrate)	Pound	1.00	.92	.92
Honey	Pound	1.00	.78	.83
	Gallon	11.84	9.24	9.83
Maple sirup	Pound	1.00	.64	.66
	Gallon	11.03	7.06	7.28
Maple sirup, imitation:				
Thin type	Pound	1.00	.66	.66
	Gallon	11.03	7.28	7.28
Thick type	Pound	1.00	.73	.73
	Gallon	11.39	8.31	8.31
Maple sugar	Pound	1.00	.87	.90
Molasses, edible, first centrifugal: <u>3/</u> U.S. Grade A	Pound	1.00	.635	.79
	No. 10 can	8.91	5.66	7.04
	Gallon	11.72	7.44	9.26
U.S. Grade B	Pound	1.00	.615	.79
	No. 10 can	8.91	5.48	7.04
	Gallon	11.72	7.21	9.26
U.S. Grade C	Pound	1.00	.58	.79
	No. 10 can	8.91	5.17	7.04
	Gallon	11.72	6.80	9.26
Molasses, inedible black- strap <u>4/</u> <u>5/</u>	Pound	1.00	.50	.795
	Gallon	11.74	5.87	9.33
	Tank car	93,920	46,960	74,666
Refiner's sirup: <u>6/</u> U.S. Grade A	Pound	1.00	.6624	.72
	Gallon	11.34	7.51	8.16
U.S. Grade B	Pound	1.00	.6192	.72
	Gallon	11.34	7.02	8.16

See footnotes at end of table.

Continued--

Table 56--Net weights, sugar solids content, and total solids content per unit of specified products at 20° Celsius--Continued

Product	Unit <u>1/</u>	Net weight per unit	Total sugar solids content <u>2/</u>	Total solid content
			Pounds	
Refiner's sirup: <u>6/</u> --Cont.				
U.S. Grade C	Pound	1.00	0.5928	0.76
	Gallon	11.55	6.85	8.78
U.S. Grade D	Pound	1.00	.532	.76
	Gallon	11.55	6.14	8.78
Sugar can sirup:				
U.S. Grade B, unsulfured	Pound	1.00	.68	.74
	No. 10 can	8.70	5.92	6.44
	Gallon	11.45	7.79	8.47
U.S. Grade B, sulfured	Pound	1.00	.65	.74
	No. 10 can	8.70	5.66	6.44
	Gallon	11.45	7.44	8.47
Sorgo sirup	Pound	1.00	.68	.76
	No. 10 can	8.78	5.97	6.67
	Gallon	11.55	7.85	8.78

1/ The No. 10 can is estimated to contain 0.76 gallon, based on internal volume of 189.7 cubic inches and 93 percent fill when cold.

2/ Total sugar solids refers to all sugars, not only sucrose. The sugar content of all products except corn sirup and honey consists of one or more of the following sugars: dextrose, levulose (monosaccharides), and sucrose (a disaccharide). Corn sirup, regular, 42° Baume contains 34 percent of mono, di, tri saccharides, which types of sugars are generally associated with sweetness. These types include dextrose and maltose (a disaccharide). In addition, corn sirup contains 44 percent higher sugars (polymers of dextrose) which have little or no sweetness. The sugar content of honey averages 38 percent levulose, 31 percent dextrose, 7 percent maltose, 1.5 percent sucrose, and 1.5 percent higher sugars.

3/ U.S. Grade A is based on a minimum total sugar content of 63.5 percent and minimum density of 79° Brix.

U.S. Grade B is based on a minimum total sugar content of 61.5 percent and minimum density of 79° Brix.

U.S. Grade C is based on a minimum total sugar content of 58.0 percent and minimum density of 79° Brix.

4/ Based on average total sugar content of 50 percent and minimum density of 79.5° Brix.

5/ One gallon of ethanol made from 2.4 gallons of inedible blackstrap molasses.

6/ U.S. Grade A is based on a Brix solids content of not less than 72 percent and a ratio of total sugars to Brix solids of not less than 92 percent.

U.S. Grade B is based on a Brix solids content of not less than 72 percent and a ratio of total sugars to Brix solids of not less than 86 percent.

U.S. Grade C is based on a Brix solids content of not less than 76 percent and a ratio of total sugars to Brix solids of not less than 78 percent.

U.S. Grade D is based on a Brix solids content of not less than 76 percent and a ratio of total sugars to Brix solids of not less than 70 percent.

# Cocoa and Cocoa Products

In processing, cocoa beans are roasted and hulled with a resultant loss in weight of 20 percent. The 80 percent remaining is chocolate liquor, sometimes called ground or bitter chocolate. About 53 percent of the liquor is composed of cocoa butter or fat and 47 percent is composed of a nonfat powder residual. Since it is impossible to completely separate the butter from the nonfat powder residual, the manufacturer will leave a minimum of fat in the powder--usually about 12 percent, but if breakfast cocoa is desired, about 22 percent is left.

Table 57--Factors relating to cocoa bean content of specified products

Product	Unit	Equivalent pounds of cocoa beans per unit of product	Remarks
Chocolate, unsweetened, commercial, or pure chocolate liquor	Pound	1.25	
Chocolate, sweetened, commercial	do.	.73	Factor to be used for most types, which usually contain 30 percent chocolate liquor; and 14 percent cocoa butter. <u>1/</u>
Cocoa powder, unsweetened	do.	1.18	12 percent cocoa fat. <u>2/</u>
Cocoa, breakfast	do.	1.04	22 percent fat. <u>2/</u>
Cocoa beverage powder (military)	do.	.39	18 percent cocoa (18 percent fat). Cocoa beverage component for military rations; also may be used for instant, sweetened or soluble cocoa.
Cocoa beverage powder, malted type, commercial	do.	.31	
Cocoa butter	do.	1.33	Beans pressed to 12 percent residual fat. <u>2/</u>
Chocolate sirup for topping	do.	.24	Chocolate liquor 13.5 percent; cocoa butter 2.5 percent.
	Gallon (11 lb.)	2.64	
Chocolate sirup for beverages	Pound	.26	Cocoa 11 percent.
	Gallon (10.27 lb.)	2.67	
Chocolate flavored milk, chocolate flavored drink	Pound	.02	Cocoa 1.0 percent.
	Gallon ( 9 lb.)	.20	
Chocolate ice cream	Pound	.06	Cocoa 2.5 percent.
	Gallon (4.5 lb.)	.28	
Candy:			
Chocolate bars or discs, sweet, solid, enriched, high melt (military)	Pound	.21	Chocolate liquor 17 percent.

See footnotes at end of table.

Continued--

Table 57--Factors relating to cocoa bean content  
or specified products--Continued

Product	Unit	Equivalent pounds of cocoa beans per unit of product	Remarks
Candy--Continued			
Chocolate fudge bars (military)	Pound	.12	Chocolate liquor 6 percent; cocoa 1.8 percent.
Chocolate-coated bars, commercial	do.	.20	
Chocolate drops, candy-coated or pan-coated chocolates	do.	.50	Chocolate liquor 40 percent.
Chocolate bars or chocolate candy, unspecified	do.	.67	An average figure for use when no detailed specifications are given.
Candy, miscellaneous, or unspecified	do.	.28	Based on assumption that slightly less than half of such candy is, or contains, chocolate. Used when type of candy is not specified.
Chocolate pudding, or chocolate dessert powder	do.	.31	Breakfast cocoa 15 percent.
Chocolate cake mix	do.	.14	Breakfast cocoa 7 percent.
Cookies, oatmeal, chocolate chip (military)	do.	.13	Chocolate liquor 5.6 percent; cocoa butter 2.2 percent.

1/ If the proportions of chocolate liquor and cocoa butter are known and are different from those shown for this item, calculate factor with following formula:

$$\text{Pounds of beans per unit of product} = \frac{1.25 (x + 2.15y)}{100}$$

x = percent of liquor

y = percent of butter

2/ In the case of cocoa butter and cocoa powder, approximately twice the amount of beans implied by these conversions are needed to produce a given amount of product. The factors have been adjusted to exclude the proportionate volume resulting in production of residual products.

# Fruits and Vegetables

Table 58--Fruit, vegetable, and juice containers:  
Dimensions, capacities, and conversion factors

Industry designation	: Dimensions : : <u>1/</u> :	: Total : : capacity : : avoirdupois : : ounces : : of water : : at 68° F. :	Conversion factor		
			: No. 303 : : equiv- : : alent : : :	: No. 2 : : equiv- : : alent : : :	: No. 2 1/2 : : equiv- : : alent : : :
6Z	: 202x308	6.00	0.360	0.295	0.204
8Z short	: 211x300	7.90	.470	.386	.266
8Z tall	: 211x304	8.65	.514	.422	.291
No. 1 flat	: 307x203	8.89	.527	.433	.298
No. 1 picnic	: 211x400	10.90	.648	.532	.367
No. 211 cylinder	: 211x414	13.55	.803	.660	.455
No. 2 vac. (12 ounce vac.):	307x306	14.70	.871	.716	.494
No. 300	: 300x407	15.20	.902	.740	.511
No. 1 tall	: 301x411	16.60	.989	.810	.561
No. 303	: 303x406	16.85	1.000	.821	.567
No. 300 cylinder	: 300x509	19.40	1.149	.945	.651
No. 2	: 307x409	20.50	1.217	1.000	.689
No. 303 cylinder	: 303x509	21.85	1.295	1.066	.734
No. 3 vacuum	: 404x307	23.85	1.416	1.163	.802
Jumbo	: 307x510	25.70	1.528	1.255	.866
No. 2 cylinder	: 307x512	26.35	1.564	1.284	.886
No. 2 1/2	: 401x411	29.75	1.765	1.450	1.000
29 Z	: 307x700	32.50	1.925	1.580	1.091
32 Z (quart)	: 307x710	35.50	2.103	1.729	1.192
No. 3 cylinder, (46 ounces)	: 404x700	51.70	3.063	2.515	1.735
No. 5 squat	: 603x408	68.15	4.034	3.322	2.286
No. 10	: 603x700	109.45	6.483	5.336	3.673

1/ The first figures represent the diameter of the container and the second figures the height. The first digit in each figure represents inches and the second two digits sixteenths of an inch; i.e., 307 is 3-7/16 inches

Source: National Cannery Association.

Table 59--Canned fruits and vegetables: Case conversion factors  
by container designation

Container designation	:	:	Factor to multiply		
			by to convert to--		
			24/303's	24/2's	24/2-1/2's
	:	Number			
6Z	:	48	0.72	0.59	0.41
8Z short	:	72	1.41	1.16	.80
8Z tall	:	24	.52	.42	.29
No. 1 flat	:	48	1.05	.87	.60
No. 1 picnic	:	48	1.30	1.06	.73
	:				
No. 211 cylinder	:	24	.80	.66	.46
No. 2 vac. (12 ounce vac.)	:	24	.87	.72	.49
No. 300	:	24	.90	.74	.51
No. 1 tall	:	24	.99	.81	.56
No. 303	:	24	1.00	.82	.57
	:				
No. 300 cylinder	:	24	1.15	.94	.65
No. 2	:	24	1.22	1.00	.69
No. 3 vacuum	:	24	1.42	1.16	.80
No. 2 1/2	:	24	1.77	1.45	1.00
29Z	:	12	.96	.79	.55
	:				
32Z (quart)	:	12	1.05	.86	.60
No. 3 cylinder	:	12	1.53	1.26	.87
No. 5 squat	:	6	1.01	.83	.57
No. 10	:	6	1.62	1.33	.92
	:				

Source: National Cannery Association.

Table 60--Shipping containers for fresh fruits and vegetables

Commodity	Shipping container	Approximate net weight <u>1/</u>	
		<u>Pounds</u> (range)	
Fresh fruits:			
Apples	: Carton, tray pack	40	45
	: Carton, cell pack	37	44
	: Carton or box, loose pack	37	43
	: Carton of 12 3-pound bags	36	
	: Carton of 8 5-pound film bags	40	
Apricots:			
California	: Los Angeles, lug	24	26
Washington	: Carton or box	28	
Avocados	: 2-layer carton, flat or lug	25	28
	: 1-layer carton or flat	12-1/2	14
Florida	: 4/5 bushel carton	36	40
Bananas	: Carton	40	
Berries:			
Blueberries	: 12 1-pint trays	11	12
Raspberries, blackberries, and boysenberries	: 12 1/2-pint trays	5-1/2	7-1/2
Strawberries	: 12 1-pint trays	10	12
	: 16-quart crate	32	
Cranberries	: Carton of 24 1-pound packages	24	
Cherries	: Lug or carton	18	20
	: Cherry lug	12	
Figs	: 1-layer flat, tray pack	5	6
	: 2-layer flat, tray pack	10	15
Grapefruit:			
Florida	: 4/5 bushel carton	42-1/2	
Texas	: 7/10 bushel carton	40	
Western:			
Desert area	: Carton	34	
Summer	: Carton	33-1/2	
Grapes, table, California:			
Coachella Valley	: Lug, plain pack	22	
Other areas	: Lug or carton, plain pack	23	
Grape juice, California	: Lug, lidded, as marked	36	42
Kiwifruit:			
California	: 1-layer flat	4	6
New Zealand	: 1-layer carton	7	9

See footnote at end of table.

Continued--

Table 60--Shipping containers for fresh fruits and vegetables--Continued

Commodity	Shipping container	Approximate net weight <u>1/</u>	
		<u>Pounds</u> (range)	
Fresh fruits--Continued:			
Lemons	: Carton	38	
Limes	: Carton	20	
	: 1/5 bushel carton	10	
Mangoes:			
Florida	: Flat	14	
Mexico	: Lug	10	11
Nectarines	: Los Angeles. Lug, 2-layer tray pack	22	
	: Lug or carton, tight-fill	25	
Olives	: Lug or carton, loose pack	26	
Oranges:			
Florida	: 4/5-bushel carton	45	
Texas	: 7/10-bushel carton	42-1/2	45
California-Arizona	: 7/10-bushel carton	38	
Peaches:			
California	: 2-layer, lug or carton	22	
	: Western peach box	18	
Other areas	: 1/2-bushel crate or carton	25	
	: 3/4-bushel crate or carton	38	
Papayas	: Carton	10	
Pears	: Standard box or carton, wrap pack	45	48
	: Carton, tight-fill pack	36	
Persimmons	: 2-layer tray pack, lug or carton	20	25
	: 1-layer tray pack, flat or carton	10	12
Pineapples	: 2-layer carton	40	
	: 1-layer carton	20	
Plantains	: Carton	50	
Plums	: Lug or carton, loose pack	28	30
	: 4-basket crate	24	32
Pomegranates	: 2-layer carton or lug	22	26
Prickly pears	: Box, wrapped pack	18	
Prunes, fresh	: Cartons	30	
Quince	: 2-layer tray, lug or carton	22	
	: Bushel carton	40	

See footnote at end of table.

Continued--

Table 60--Shipping containers for fresh fruits and vegetables--Continued

Commodity	Shipping container	Approximate net weight <u>1/</u>	
		Pounds (range)	
Fresh fruits--Continued			
Tangelos:			
Florida	: 4/5 bushel carton	40	45
California	: 1/2-bushel carton	25	30
Tangerines:			
Florida	: 4/5-bushel carton	47	50
California	: 1/2-bushel carton	25	30
Fresh vegetables:			
Anise	: 15-1/2-inch wirebound crate	40	50
	: Carton and crate packed, 1-1/2		
	: to 2-1/2 dozen	25	
	: Crate	60	70
Artichokes	: Carton or box by count or		
	: loose pack	20	25
Asparagus	: Pyramid crate	30	36
	: 1/2-pyramid crate or carton	15	17
	: Carton of 16 1-1/2 pound packages	24	25
Beans, snap and lima	: Bushel crate, hamper, or basket	28	32
	: Carton	28	32
Beets	: 1-2/5-bushel crate, 24s	36	40
	: 4/5-bushel crate, 12s	15	20
Topped	: Sack, as marked	25	50
Broccoli	: 14 to 18 bunches, carton	20	24
Brussels sprouts	: Carton	25	
	: 12 10-ounce cups, flat or carton	7-1/2	8
Cabbage	: Sack, crate, or carton	50	55
Savoy	: Sack, crate, or carton	37	
Carrots:			
Bunched	: Carton, 2-dozen bunches	23	27
Topped	: 48 1-pound bags or 24 2-pound		
	: bags in master container	48	
	: Mesh bag, loose, as marked	25	55
Mini	: 20 12-ounce cello	15	17
Cauliflower	: Flat or 2-layer carton of 9 to		
	: 16 trimmed heads	18	21
	: Long Island type crate	45	55

See footnote at end of table.

Continued--

Table 60--Shipping containers for fresh fruits and vegetables--Continued

Commodity	Shipping container	Approximate net weight <u>1</u> / Pounds (range)	
Fresh vegetables--Continued:			
Celery:			
California	15-1/2 inch crate, flatpack	60	65
Florida	14-1/2 inch crate	55	60
Celery hearts:			
California	Carton of 12 18-film bags (2 to 3 stalks each)	24	28
Florida	Carton of 12 18-film bags (2 to 3 stalks each)	32	38
Chinese cabbage	15-1/2 inch wirebound crate	50	53
	1-1/9-bushel wirebound crate	40	45
Chives	Flat of 12 pots	10	
Corn, sweet	Wirebound crate 4-1/2 to 5 dozen	42	50
	Sacks	35	40
Cucumbers	Bushel carton or wirebound crate	50	55
	1-1/9-bushel carton and wirebound	50	55
	Los Angeles lug	28	32
	Carton of 24	22	28
Cucumbers, greenhouse	Carton, 1-layer pack	8	10
Eggplant	Carton packed 18's and 24's	20	23
	Bushel carton, 1-1/9-bushel carton, or wirebound crate	30	35
Escarole and endive	Carton or wirebound crate of 24 heads	30	36
	1-1/9-bushel wirebound crate	25	28
Garlic	Carton or crate, bulk	30	
	Carton of 12-tube or 12-film bag package (2 cloves each)	10	
Greens	Bushel basket, crate or carton	20	25
	1-2/5 or 1-3/5 bushel wirebound crate	30	35
Horseradish	Sack	50	60
Leeks	4/5-bushel crate	20	
Lettuce:			
Iceberg	Western Iceberg carton of 18 to 30 heads	36	45
Romaine	1-1/9-bushel wirebound crate	20	25

See footnote at end of table.

Continued--

Table 60--Shipping containers for fresh fruits and vegetables--Continued

Commodity	Shipping container	Approximate net weight <u>1</u> / Pounds (range)	
Fresh vegetables: Continued--			
Lettuce:			
Big Boston	Carton and Eastern carton of 24 heads	20	24
Other	Bib	5	8
	Leaf	10	13
Melons:			
Cantaloups	1/2 carton or crate packed 12, 15, 18, 23	35	40
	Jumbo crate, packed 18-45	70	80
	2/3 cartons 15, 18, 24, 30	53	55
Casabas	Carton, bliss style, packed 4, 5, 6, or 8	32	34
Crenshaws	Carton, bliss style, packed 4, 5, 6, or 8	30	33
Honeydews	Carton, various counts	29	32
	Flat crate standard	40	
Persians	Carton, 4, 5, or 6	35	50
Watermelons:			
Western and New Mexico	Bulk	40,000	
Florida, Texas, and other States	Bulk	45,000	
	Bulk bin, small size	800	1,000
	Bulk bin, medium size	1,400	1,800
	Carton, holding 3 to 5 melons	65	80
Texas and Mexico	Carton, 3 or 4	65	80
Mushrooms	Carton of 8 1-pound packages	8	
	Carton of 9 8-ounce packages	4 1/2	
	Carton, loose pack	10	
	4-quart basket	3	5
Okra	Bushel hamper or crate	30	
	5/9 bushel crate	18	
	Carton	18	
	12-quart basket	15	18
Mexico	Crate or carton	15	18

See footnote at end of table.

Continued--

Table 60--Shipping containers for fresh fruits and vegetables--Continued

Commodity	Shipping container	Approximate net weight <u>1</u> / Pounds (range)	
Fresh vegetables--Continued			
Onions:			
Dry	: Sack	50	
	: Sack	25	
	: Carton, 15 3-pound bags	45	
	: Carton, 20 2-pound bags	40	
Green	: Carton or crate, 4-dozen bunches	15	25
	: Carton or crate, 2 dozen	20	
Parsley	: Carton, bushel basket, or crate		
	: 5-dozen bunches	20	25
Parsnips	: Film bags	25	
	: Carton of 12-1-pound cello bags	12	
Peas:			
Southern Florida	: Bushel hamper or crate	24	26
Green	: Bushel basket or wirebound crate	28	32
Peppers:	: Bushel carton	25	30
Green, California	: 1-1/9 bushel wirebound crate	25	30
	: Carton	27	34
Chili: California	: Lugs or carton, loose pack	16	25
Texas and Mexico	: 3/4 bushel carton	20	
Potatoes	: 100-pound sack	100	
	: 50-pound sack or carton	50	
	: 20-pound film or paper bag	20	
	: 5 10-pound film or paper bags	50	
	: 10 5-pound film or paper bags	50	
Radishes, topped	: Carton of 24 8-ounce film bags	12	
	: Carton of 30 6-ounce film bags	11	12
	: 40-pound film bag	40	
Rhubarb	: Carton or lug	20	
	: 5-pound carton	5	
Rutabagas	: Bag or carton	25	
	: Sack or carton	50	
Salad mix	: Carton of 8 5-pound film bags	40	
Shallots, dry	: Bag	5	
	: 16-quart carton	32	

See footnote at end of table.

Continued--

Table 60--Shipping containers for fresh fruits and vegetables--Continued

Commodity	Shipping container	Approximate net weight <u>1/</u>	
		Pounds (range)	
Fresh vegetables--Continued:			
Spinach	Carton or wirebound crate, 2 dozen	20	22
	12 10-ounce film bags	7 1/2	8
	Bushel basket or crate	20	25
Squash:			
Winter	1-1/9-bushel crate	40	50
	Bulk bin carton, collapsible and reuseable	800	900
	Various bulk bins	900	2,000
Summer	5/9 bushel crate or carton	21	
	1/2 bushel basket or carton	21	
	Carton or Los Angeles lug	24	28
	3/4 lug	18	22
	1-1/9 bushel crate	42	45
Sweet potatoes	Carton, crate or bushel basket	50	
	Carton, California	40	
Tomatoes:			
Cherry	12-pint carton	16	18
Mature green	Carton	30	
Pinks and ripe	2-layer flat, carton, or tray pack	20	
	3-layer lug or carton	30	
	Carton, loose pack	30	
Greenhouse	Basket	8	10
Turnips, topped	Film bag	25	
	Film and mesh bag or bushel basket	50	
	Carton of 24 1-pound film bags	24	
Watercress	Carton, 25 bunches	8	

1/ Weight ranges are shown for most commodities. Actual weights larger and smaller than the ranges shown may be found. The mid-point of the range should be used if a single value is desired.

Table 61--Canned fruits and juices: Net weight per case <sup>1/</sup>

(Containers)					
Commodity	Packing	48 8-ounce	24 No. 303	12 No. 3	
				cylinders	
		Pounds			
Canned fruits:					
Citrus:					
Grapefruit and orange sections	Sirup	24	24		37.5
Grapefruit sections	do.	24	24		37.5
	Water	24			
		24 8-ounce : 24	24 No. 2	24 No. 2½	6 No. 10
		tall : No. 303			
Noncitrus:					
Apples	Sp. Gr. 0.95	--	24.0	30	40.5
	Water	--	--	--	37.5
Apple butter		--	--	--	46.5
Applesauce	Sp. Gr. 1.07	--	24.0	--	40.5
Apricots	Heavy sirup	13.1	24.0	--	40.5
	Light sirup	12.8	24.0	--	39.8
Blackberries	Heavy sirup	12.8	24.0	--	39.8
	Light sirup	12.8	24.0	--	39.4
	Water	12.0	24.0	--	38.6
Cherries:					
Unpitted	Heavy sirup	13.1	24.0	--	40.5
	Light sirup	12.8	24.0	--	39.8
Pitted	Heavy sirup	13.1	24.0	--	40.5
	Water	12.0	24.0	--	38.6
Cranberry sauce	42 percent solids	--	24.0	--	43.9
Figs	Heavy sirup	13.1	25.5	--	41.3
Fruit cocktail	Extra heavy sirup	13.1	25.5	--	41.3
	Heavy sirup	13.1	24.0	--	40.5
Fruit for salad	Extra heavy sirup	13.1	25.5	--	41.3
	Heavy sirup	13.1	24.0	--	40.5
Grapes	Extra heavy sirup	12.4	24.0	--	41.3
	Heavy sirup	12.4	24.0	--	--
Peaches	do.	13.1	24.0	--	40.5
	Light sirup	12.8	24.0	--	39.8
Pears	Heavy sirup	12.8	24.0	--	39.8
	Light sirup	12.8	24.0	--	39.4
Pineapple	Heavy sirup	--	--	--	40.5
	Water	--	--	--	39.8
Plums	Heavy sirup	13.2	24.0	--	45.0
	Light sirup	12.8	24.0	--	39.8
Prunes, stewed	Extra heavy sirup	--	--	--	41.3
	Heavy sirup	--	--	--	40.5
		48 6½-ounce	24 No. 2	12 No. 3	Gallon
				cylinders	
Canned juices:					
Citrus:					
Blended citrus		19.5	29.6	37.3	8.7
Grapefruit		19.5	29.6	37.3	8.7
Lemon and lime		--	29.2	36.8	8.6
Orange		19.5	29.6	37.3	8.7
Tangerine		19.5	29.6	37.3	8.7
		24 No. 2	12/32z glass	12/40z glass	Gallon
Noncitrus:					
Apple		29.9	26.2	32.8	8.8
Grape		30.6	26.5	33.0	9.0
Nectar		29.9	26.0	32.5	8.8
Pineapple		29.9	26.2	32.8	8.8
Prune	18.5° brix	--	26.7	33.4	--

-- = Not available.

<sup>1/</sup> Weights are derived from Net Contents Statements for Canned Food Labels - 1977, National Canners Association.

Table 62--Fruit juices and concentrates: Factors relating to farm and processed weights 1/

Item and specification	Approximate brix	Equivalent farm weight per gallon	Gallons per unit of farm weight	Net weight per gallon
	Degrees	Pounds	Box <u>2/</u> Ton	Pounds
Apple:				
Single strength	13	12	--    170	8.8
Frozen 3 to 1 concentrate	45	47	--    43	10.0
Cirtus fruits: <u>3/</u>				
Orange				
Single strength juice	12	16	5.5    122	8.7
Frozen concentrate	45	69	1.3    29	10.0
Grapefruit				
Single strength juice	10	18	4.7    110	8.7
Frozen concentrate	40	83	1.0    24	9.8
Lemon				
Single strength juice	<u>4/</u>	26	2.9    76	--
Nonfrozen concentrate	<u>4/</u>	112	.7    17.9	--
Concentrate for lemon- ade	<u>4/</u>	18	4.2    110	--
Grape:				
Single strength	16	11	--    175	8.9
Frozen concentrate	50	40	--    50	10.3
Pineapple:				
Single strength	14	15	--    133	8.8
4 to 1 concentrate	61	75	--    27	10.8
3 to 1 concentrate	50	60	--    33	10.3
Prune (from fresh prunes):				
Single strength	31	13	--    155	9.4
1 1/2 to 1 concentrate	73	32	--    62	11.4

-- = Not available.

1/ For additional information on concentration of fruit juices, see Calculations of Volume and Weight Reduction in the Concentration of Fruit Juices, ARS 74-7, Agr. Res. Serv., U.S. Dept. Agr., June 1956.

2/ Oranges, 90 pounds; grapefruit, 85 pounds; lemons, 76 pounds.

3/ Orange and grapefruit products based on Florida yields; lemons on California.

4/ Lemon product yields are based on a standard ton containing 36.5 pounds of anhydrous citric acid.

Table 63--Canned fruits: Factors relating to farm and processed weights

Commodity	Pounds farm weight <sup>case</sup>		Pounds		Cases canned per ton farm weight 1/		Cases of		Net weight	
	From pounds : 24/2's		from pounds : 24/2's		24/2's : 24/303's		24/2's : 24/2's		per case	
	canned	No. 24 2-1/2's	canned	from pounds : 24/2's	24/2's : 24/303's	6/10's	from pounds : 24/2's	canned	24/2's	2-1/2's
<hr/>										
Citrus fruit:										
Citrus salad	2.096	91.32	0.477	21.9	38.8	23.8	0.02299		43.5	
Grapefruit sections	2.020	87.72	.495	22.8	40.3	24.8	.02299		43.5	
Orange sections	2.222	96.62	.450	20.7	36.6	22.5	.02299		43.5	
<hr/>										
Other fruit:										
Apples	1.859	72.46	.538	27.6	48.6	30.0	.02564		39.0	
Applesauce	1.250	53.90	.800	37.1	65.6	40.5	.02299		43.5	
Apricots	.694	31.25	1.440	64.0	113.3	69.9	.02222		45.0	
Berries:										
Blackberries	.646	28.09	1.549	71.2	125.0	77.5	.02299		43.5	
Blueberries	.836	36.36	1.196	55.0	97.4	60.1	.02299		43.5	
Boysenberries	.694	29.24	1.440	68.4	120.0	74.4	.02299		43.5	
Gooseberries	.595	25.06	1.680	79.8	140.0	86.8	.02299		43.5	
Loganberries	.654	29.24	1.530	68.4	120.0	74.4	.02299		43.5	
Raspberries	.641	26.99	1.560	74.1	130.0	80.6	.02299		43.5	
Strawberries	.725	30.49	1.380	65.6	115.0	71.3	.02299		43.5	
Cherries:										
Red tart-pitted	1.055	45.87	.948	43.6	76.8	47.4	.02299		43.5	
Sweet-pitted	1.022	44.44	.979	45.0	79.6	49.0	.02299		43.5	
Sweet-untipped	.707	30.77	1.414	65.0	115.0	70.8	.02299		43.5	
Cranberries	.388	16.31	2.580	122.6	215.0	133.3	.02083		48.0	
Figs	.654	29.41	1.530	68.0	120.4	74.1	.02222		45.0	
Fruit cocktail	.889	40.00	1.125	50.0	88.5	54.5	.02222		45.0	
Fruits for salad	.889	40.00	1.125	50.00	88.5	54.5	.02222		45.0	
Olives 3/	.945	25.51	1.058	78.4	138.6	85.4	.03704		27.0	
Peaches:										
Clingstone	.836	36.36	1.196	55.0	97.4	60.1	.02299		43.5	
Freestone	1.022	44.44	.979	45.0	79.6	49.0	.02299		43.5	
Pears	1.000	43.48	1.000	46.0	81.4	50.1	.02299		43.5	
Pineapple	1.709	76.92	.585	26.0	46.0	28.3	.02222		45.0	
Plums, fresh	.663	29.85	1.508	67.0	118.6	73.0	.02222		45.0	

Note: Relationships between farm and processed weights for most commodities vary widely from season to season and between localities. Factors shown in this table represent average relationships for all producing areas.

1/ Basic figure is 24/2's for citrus; 24/303's for applesauce and berries; 6/10's for apple slices and red tart cherries; 24/300's for cranberries; and 24/2 1/2's for other products. Case conversion factors based on table 61.

2/ Basis 24 cases of No. 300's.

3/ Drained weight.

Table 64--Canned vegetables: Factors relating to farm and processed weights

Commodity	Pounds farm weight		Pounds		Cases canned per ton farm weight		Cases 24/303's		Net weight	
	: From pounds : From case No.:		: from pounds :		: 24 2-1/2's :		: from pounds :		: per case :	
	: canned : 24/303's :		: farm weight :		: 24/303's :		: canned :		: 24/303's :	
	Pounds		Pounds		Cases		Cases		Pounds	
Asparagus	1.220	28.57	0.819	70	39.5	43.2	0.0427	23.4		
Lima beans <u>2/</u>	.625	15.38	1.599	130	73.4	80.2	.0407	24.6		
Snap beans	.712	16.67	1.404	120	67.8	74.1	.0427	23.4		
Beets	1.290	31.75	.755	63	35.6	38.9	.0407	24.6		
Carrots	1.333	32.79	.750	61	34.5	37.7	.0407	24.6		
Corn:										
Cream style	2.033	50.00	.492	40	22.6	24.7	.0407	24.6		
Whole grain	2.538	62.50	.394	32	18.1	19.8	.0407	24.6		
Mushrooms	1.403	34.48	.713	58	32.8	35.8	.0407	24.6		
Okra	1.030	24.10	.971	83	46.9	51.2	.0427	23.4		
Peas <u>2/</u>	.739	18.18	1.353	110	62.1	67.9	.0407	24.6		
Pimentos	2.410	57.14	.415	35	19.8	21.6	.0422	23.7		
Potatoes, white	1.572	37.74	.636	53	29.9	28.7	.0417	24.0		
Pumpkin and squash	2.710	66.67	.369	30	16.9	18.5	.0407	24.6		
Sauerkraut	1.859	43.48	.538	46	26.0	28.4	.0427	23.4		
Spinach	.901	20.00	1.110	100	56.5	61.7	.0450	22.2		
Sweetpotatoes	1.292	30.77	.784	65	36.7	40.1	.0420	23.8		
Tomatoes	1.553	36.36	.644	55	31.1	34.0	.0427	23.4		
Tomato catsup <u>3/</u>	2.457	66.67	.407	30	17.1	18.6	.0369	27.1		
Tomato juice	1.527	36.36	.655	55	31.1	34.0	.0420	23.8		
Tomato paste <u>3/</u>	5.432	142.86	.184	14	8.0	8.7	.0380	26.3		
Tomato puree <u>4/</u>	3.247	80.00	.308	25	14.2	15.5	.0407	24.6		
Pickles	.744	17.86	1.344	112	63.8	69.4	.0416	30.0		

1/ Basic figure is yield of 24/303's per ton. One case 24/303's is equivalent to 0.57 cases 24/2 1/2's and 0.62 cases 6/10's.

2/ Shelled basis.

3/ 33 percent solids.

4/ 11 percent solids.

Table 65--Dehydrated and dried fruits: Relationship between  
farm and processed weights

Commodity	Factors for converting to--		
	Farm weight from	Farm weight from	Packed processed weight
	natural condition	packed processed	from natural condition
	weight	weight	weight
Apples	8.00	8.00	1.00
Apricots	6.00	5.56	1.08
Dates: <u>1/</u>			
Whole	1.00	1.00	1.00
Pitted	NA	1.14	.875
Figs	3.00	2.94	1.02
Peaches:			
Cling	7.50	6.94	1.08
Freestone:			
Elberta	7.00	6.48	1.08
Other	6.00	5.55	1.08
Pears	6.50	6.31	1.03
Prunes: <u>2/</u>			
California	2.90	2.60	1.04
Pacific Northwest	3.14	3.05	1.03
Raisins:			
Thompson, sultana <u>3/</u>	4.30	4.62	.93
Golden seedless	4.30	4.53	.95
Muscat, seeded	4.00	5.00	.80

NA = Not available.

1/ Includes only farm sales of dates for human consumption after farm cullage.  
Average farm sales of cull dates directly into nonfood channels estimated at 14  
percent of U.S. production.

2/ To convert canned dried prunes to dried prunes, multiply by 0.691085.

3/ Includes unseeded muscats.

Table 66--Fruits and vegetables: Relationship of freeze-dried product to frozen weight 1/

Frozen food	Moisture content	Weight of freeze-dried products as percentage of frozen counterpart	Factors to convert freeze-dried weight to frozen weight
	Percent	Percent	
Apples, uncooked, sliced, sweetened	73.3	27.2	3.7
Apricots, uncooked	85.4	14.9	6.7
Blueberries, uncooked, unsweetened	85.0	15.3	6.5
Broccoli, cooked or uncooked	90.6	9.6	10.4
Brussels sprouts, cooked or uncooked	89.3	10.9	9.2
Cauliflower, cooked or uncooked	92.9	7.2	13.9
Green peas, cooked	81.7	18.7	5.4
Green peppers, cooked	94.7	5.4	18.5
Mushrooms, uncooked, whole, pieces or sliced	90.4	9.8	10.2
Pears, uncooked pieces or slices	82.7	17.6	5.7
Pineapple, uncooked slices or chunks, sweetened	77.1	23.4	4.3
Plums, Italian, uncooked slices or pieces	78.7	21.7	4.6
Raspberries, red, uncooked	74.3	26.2	3.8
Snap beans, cooked	91.6	8.6	11.6
Strawberries, whole, uncooked	75.5	24.8	4.0

1/ Freeze-dried products contain 2 percent moisture..

Table 67--Dehydrofrozen fruits and vegetables: Relationship between moisture content of product and weight reduction

Percentage original moisture content	:	Percentage moisture content in product at percentage weight reduction of--						
		50	:	60	:	70	:	80
	:	<u>Percent</u>						
95	:	90		87.5		83.3		75
90	:	80		75.0		66.7		50
85	:	70		62.5		50.0		25
80	:	60		50.0		33.3		0
75	:	50		37.5		16.7		--
70	:	40		25.0		0		--
65	:	30		12.5		--		--
60	:	20		0		--		--
55	:	10		--		--		--
50	:	0		--		--		--
	:							

-- = Not applicable.

Table 68--Dehydrofrozen fruits and vegetables: Relationship between prepared material and product

Commodity	:	Pounds of prepared material to produce pound dehydrofrozen product <u>1/</u>	
		<u>Pounds</u>	
Apples	:	2	
Carrots	:	2	
Cherries	:	2 - 2.5	
Green peas	:	2	
Pimentos	:	3	
Potatoes:	:		
Piece form	:	2	
Mashed	:	4	

1/ After peeling, trimming, and cutting. Preparation losses should be the same as for freezing.

Table 69--Fruits, dehydrated (low moisture): Relationship between farm and processed weights

Items	Packaged weight of dehydrated product		Pounds of fresh product to make a pound of dehydrated product
	No. 10 can	Gallon can	
	Pounds	Pounds	
Apples:			
Wedges	2.0	--	
Slices	2.0	--	
Dice	2.4	--	10.0
Nuggets	2.5	--	
Powder	--	5	
Apricots:			
Slices	2.75	--	
Dice	3.5	--	
Nuggets	3.5	--	7.0 - 8.0
Powder	--	6	
Cherries:			
Sour-pitted	.7	--	7.0
Dates:			
Nuggets	3.5	--	
Powder	3.5	6	<u>1/</u> 1.75
Figs:			
Slices	3.0	--	
Powder		6	<u>1/</u> 1.35
Peaches:			
Slices	2.0	--	
Dice	3.0	--	
Nuggets	3.0	--	7.0 - 8.0
Powder	--	6	
Pears:			
Slices	1.5	--	11.0 -12.0
Prunes:			
Whole pitted	3.0	--	
Nuggets	3.0	--	<u>1/</u> 1.71
Powder	--	6	
Strawberries			
Freeze-dried	.7	--	11.0 -14.0

-- = Not available.

1/ From commercially dried fruit.

Table 70--Vegetables, dehydrated: Relationship between farm and processed weights and weight of product per 5-gallon container

Commodity	Moisture content		Average losses		Factors for converting		Weight of	
	: Average : Dehydr-		: from sizing, trimming,		: to-- 2/		: product	
	: for raw : ated		: peeling, blanching,		: Processed : Equivalent		: per	
	: material : product :		: sorting, and other		: weight from : farm weight		: 5-gallon	
			1/		1/		1/	
			Percent				Product	Pounds
Asparagus	92	4	55	0.0037	27	Dice	8	
Beans, green	89	4	30	.080	12.5	Powder	17	
Beets without tops	87	4	10	.122	8.2	1 1/2 inch	7	
Cabbage	92	4	30	.048	21	cut	30	
Carrots	86	4	35	.095	10.5	Powder	9	
Celery:						Powder	30	
Stalk and leaf						Dice	10-20	
Flakes	93	35	10	.065	15.4	Powder	35	
Stalk slice	94	3.5	25	.047	21.2	Flakes	3-6	
Garlic	71	5	15	.260	4	Slice	6	
						Sliced	15	
						Powder	30	
Greens	92	4	20-50	.040-.067	15-25	Flakes	8	
						Powder	18	
Onion	88	4	11	.110	9	Flakes	10-15	
						Powder	25	
Parsley	89	4	15	.097	10.3	Flakes	4	
Peas, green	78	4	10	.200	5	Powder	20	
Peppers:						Powder	18	
Green bell	93	3.5	40	.049	20.4	Dice	8	
Red bell	90	5.5	38	.064	15.6	Powder	20	
						Dice	10	
						Powder	25	

Continued--

See footnotes at end of table.

Table 70--Vegetables, dehydrated: Relationship between farm and processed weights and weight of product per 5-gallon container--Continued

Commodity	Moisture content		Average losses		Factors for converting		Weight of	
	:		:		:		:	
	:		:		:		:	
	:		:		:		:	
Average : Dehydr-		from sizing, trimming,		Processed : Equivalent		product		
: for raw		: peeling, blanching,		: weight from		: per		
: material		: sorting, and other		: farm weight		: 5-gallon		
: product		1/		: farm weight : from processed		: container		
: -----		Percent -----		Product		Pounds		
Potatoes:								
Dice	80	6	40	0.125	8.0	--	17	
Granules	78	6	33	.14-.17	5.9-7.1	--	36	
Flakes	80	4.5	33	.14-.17	5.9-7.1	--	10	
Turnips	91	5	33	.063	16	Dice	14	
						Powder	25	
Sweet potato flakes	69	3	23.5	.143	7			
Onions, green tops	90	4	20	.083	12.0	Flakes	6	
						Minced	8	
Tomato flakes	93	4	20	.058	17.0	Flakes	12	
Horseradish	70	5	20	.025	4.0	Powder	20	
Leek	88	4	27	.091	11.0	Powder	22	
Okra	90	5	13	.091	11.0	Powder	22	
Pimento	89	4	65	.040	25.0	Powder	25	
Pumpkin	91	5	13	.083	12.0	Powder	25	
Spinach	90	4	10	.094	10.6	Powder	18	

-- = Not applicable.

1/ Includes fines and defects removed during final inspection of dried product and other process losses.

2/ Successful dehydration of many of these vegetables depends upon the ability to divert undesirable sizes and/or grades to other kinds of processing. If such outlets are not available, shrinkage ratios will be greater than shown.

Table 71--Frozen fruits and vegetables: Estimated average relation between farm and processed weights

Commodity	Percentage recovery	Factors for converting to --		Approximate fruit-to- sugar ratio
		Farm weight	Frozen weight	
		from frozen weight <u>1/</u>	from farm weight <u>1/</u>	
	Percent			<u>2/</u>
Frozen fruits:				
Apples	60	1.67	0.60	0 or 7 to 1
Apricots	78	1.10	.91	6 or 8 to 1
Berries:				
Blackberries	95	1.05	.95	0
Blueberries	97	1.03	.97	0
Boysenberries	88	1.14	.88	0
Gooseberries	97	1.03	.97	0
Loganberries	88	1.14	.88	0
Raspberries	95	1.05	.95	0
Strawberries	93	.89	1.12	5 or 4 to 1
Cherries, sour	75	1.11	.90	5 to 1
Cherries, sweet	85	1.18	.85	0
Grapes	85	1.18	.85	0
Peaches	67	1.25	.80	5 to 1
Pineapples	50	1.60	.625	4 to 1
Prunes	85	1.18	.85	0
Frozen vegetables:				
Asparagus	52	1.92	.52	<u>2/</u>
Lima beans <u>3/</u>	95	1.05	.95	<u>2/</u>
Snap beans	85	1.18	.85	<u>2/</u>
Broccoli	75	1.33	.75	<u>2/</u>
Brussels sprouts	75	1.33	.75	<u>2/</u>
Cauliflower	70	1.43	.70	<u>2/</u>
Corn, cut	27	3.70	.27	<u>2/</u>
Carrots	55	1.82	.55	<u>2/</u>
Okra	85	1.18	.85	<u>2/</u>
Peas, green <u>3/</u>	92	1.09	.92	<u>2/</u>
Peas, southern	50	2.00	.50	<u>2/</u>
Potatoes, white	40	2.50	.40	<u>2/</u>
Peppers, sweet	70	1.43	.70	<u>2/</u>
Spinach	70	1.43	.70	<u>2/</u>
Other greens	75	1.33	.75	<u>2/</u>
Squash	55	1.82	.55	<u>2/</u>
Sweetpotatoes	50	2.00	.50	<u>2/</u>

1/ Frozen weight is weight of frozen fruit plus sugar content. Where more than one fruit-to-sugar ratio is shown, the first is used in this computation.

2/ Fruit-to-sugar ratio does not apply to vegetables.

3/ Shelled.

Table 72--Fruit and vegetable juice powders: Factors relating to farm and processed weights

Items	: Approximate :		: Factors for converting to--	
	: percentage :	: Yield of juice :		
	: solids :	: as a percentage :	Processed weight :	Equivalent farm
	: content :	: of raw material :	from :	weight from
	: of juice :		farm weight :	processed weight
	:----- Percent -----			
Apple	: 12	: 75	: 0.092	: 8
Citrus:				
Grapefruit	: 11	: 49	: .055	: 18
Lemon	: 9	: 40	: .037	: 27
Orange	: 13	: 55	: .072	: 14
Grape	: 17	: 75	: .130	: 8
Pineapple <u>1/</u>	: 15	: 58	: .089	: 11
Prune	: 32	: 74	: .250	: 4
Tomato	: 6.4	: 70	: .045	: 24

1/ Assuming juice is only product. In practice, however, juice is made only from edible grade peels, cores, trimmings, and sortouts.

Table 73--Potatoes: Estimated conversion factors for selected products

Products	: : : : :	Pounds farm weight	: : : : :	Pounds of finished product	: : : : :	Recovery	: : : : :	To obtain farm weight equivalent, multiply product weight by--
	: : : : :	----- Pounds -----				<u>Percent</u>		<u>Number</u>
Starch:	: : : : :							
Maine	: : : : :	100		9.3		9.3		10.75
Idaho	: : : : :	100		12.5		12.5		8.00
Average	: : : : :	100		11.1		11.1		9.00
Frozen	: : : : :	100		40.0		40.0		2.50
Chips	: : : : :	100		<u>1/</u> 24.5		<u>1/</u> 24.5		4.08

Note: In commercial potato peeling plants, preparation loss including waste and shrinkage ranged from 5 to 48 percent, averaging approximately 25 percent.

1/ From potatoes with 1.075 specific gravity.

Source: Marketing Research Report No. 105, Oct. 1955.

## Hops

Table 74--Hop content of beer

Size of container	:	Factor for converting to hop content (cured weight)
	:	<u>Pounds</u>
Barrel (31 gallons)	:	0.2

## Tree Nuts

Table 75--Tree nuts: Relationship between shelled and in-shell, and  
between farm and retail weights

Commodity	:	Factors for converting to--			
	:	Shelled weight	In-shell	Retail weight	Orchard run
	:	from in-shell	equivalent	from	equivalent
	:	weight	from	orchard-run <u>1/</u>	from retail
	:		shelled weight		weight <u>1/</u>
Almonds:	:				
Domestic <u>2/</u>	:	0.60	1.67	0.95	1.05
Imported	:	.30	3.33	NA	NA
Brazil nuts	:	.50	2.00	NA	NA
Cashews	:	.22	4.55	NA	NA
Chestnuts	:	.84	1.19	NA	NA
Filberts:	:				
Domestic	:	.40	2.50	.95	1.05
Imported	:	.45	2.22	NA	NA
Macadamias (Hawaii)	:	.38	2.63	NA	NA
Pecans:	:				
Improved	:	.40	2.50	.91	1.10
Seedling	:	.36	2.78	.91	1.10
Walnuts, English:	:				
Domestic <u>3/</u>	:	.36	2.78	.87	1.15
Imported	:	.42	2.38	NA	NA
Walnuts, black	:	.17	5.88	NA	NA
Pistachios	:	.50	2.00	.33	1.67

NA = Not available.

1/ Orchard-run weight before culling. Both orchard-run and retail weight are in-shell basis.

2/ Average for domestic crop in recent years. The following illustrate the variation among various varieties: Nonpareil, Merced, and Thompson 0.60; Mission 0.40; Peerless 0.35. Peerless is frequently marketed in-shell.

3/ Average for portion of crop shelled commercially. Equivalent shelled-in-shell ratio for graded walnuts sold in-shell is 0.45, and average for entire U.S. walnut crop is 0.40.

## Coffee and Tea Products

Table 76--Factors for obtaining equivalents of green coffee beans  
and leaf tea from specified products

Product	Description	Factors
Coffee:		
Green, bag <u>1</u> /	Standard bag of 60 kilograms, number of pounds	132.276
Parchment	The green coffee bean contained in the parchment skin	.800
Roasted	Green coffee roasted to any degree and includes ground coffee	1.190
Pure instant soluble	The water-soluble solids derived from roasted coffee	2.500
Decaffeinated	Green roasted or soluble coffee from which caffeine has been extracted:	
	Green	1.000
	Roasted	1.190
	Instant soluble	2.500
Tea, pure instant soluble	2.5 pounds of dry leaf tea yields 1 pound of soluble tea	2.500

1/ All coffee in the naked bean form before roasting.

## Yeast

Table 77--Relationship between yeast solids of specified  
types of yeast and yeast products

Product	Factors for converting to--	
	Compressed yeast	Dry active yeast
Compressed yeast	1.00	0.305
Dry active yeast <u>1</u> /	3.17	1.00

1/ The functional relationship between dry and compressed yeast differs from the weight relation. It requires about 40-45 percent of the weight of compressed yeast to give an equivalent activity of dried yeast. These factors are based upon the following average moisture levels: compressed yeast, 70.5 percent; dry active yeast, 8.0 percent; and nutritional yeast, 4.5 percent.

## Tobacco

Table 78--Tobacco: Factors for adjusting stocks reported by dealers and manufacturers to a farm-sales-weight equivalent

[illegible]

1/ Types 11-37 are reported on the basis of packed weight.

2/ Farm-sales-weight equivalent based on unstemmed sweated weight factor.

3/ The instructions for reporting unstemmed cigar-leaf of the domestic types require that dealers' and manufacturers indicate the weight basis on which the tobacco is reported, namely, farm-sales-weight, marked weight, or sweated weight. The stocks are converted to the farm-sales-weight equivalent on the basis of average factors reflecting the percentage reported each quarter in each of these categories.

# Naval Stores

Table 79--Naval stores: Weights and measures

Item	:	Unit	:	Amount
Crude pine gum:	:		:	
Gum naval stores (crops):	:		:	
Faces <u>1</u> /	:	Number	:	10,000
Barrels, standard	:	do.	:	215
Net weight (each)	:	Pounds	:	435
Yield (each):	:		:	
Gum turpentine)	:	Gallons	:	9.8
Rosin	:	Pounds	:	299
Rosin:	:		:	
Gum:	:		:	
Drum:	:		:	
Net weight	:	Pounds	:	<u>2</u> /517
Gross weight	:	do.	:	534
Volume	:	Cubic feet	:	8.27
Shipping space	:	do.	:	9.4
Bag, net weight	:	Pounds	:	100
Other types:	:		:	
Drum:	:		:	
Net weight	:	do.	:	500 - 520
Average	:	do.	:	515
Volume	:	Cubic feet	:	8.27
Shipping space	:	do.	:	9.4
Bag, net weight	:	Pounds	:	100
Turpentine:	:		:	
Drum:	:		:	
Net weight	:	do.	:	396
Gross weight	:	do.	:	450
Liquid measure at 70° Fahrenheit	:	Gallons	:	55
Barrel, liquid measure at 70° Fahrenheit	:	do.	:	50
Gallon, measure at 70° Fahrenheit	:	Pound	:	7.2
Tank car, average	:	Gallons	:	6,000 - 8,000
Tank truck, average	:	do.	:	4,000

1/ Usually one "face" per tree in the United States.

2/ Statistical data published by USDA are in terms of 520-pound drums.

Table 80--Technical data on spirits of turpentine by type

Item	Unit	Gum spirits	Steam : distilled : wood	Sulfate wood	
				Refined	Crude
Specific gravity at 15.5°/15.5° Celsius:	Lbs/in. <sup>2</sup>				
Typical for fresh turpentine	do.	0.868	0.862	0.867	--
Specification range, U.S. standard	do.	.860-.875	.860-.875	.860-.875	--
Specific gravity change per degree Fahrenheit	do.	.00045	.00045	.00045	--
Specific gravity change per degree Celsius	do.	.00082	.00082	.00082	--
Average weight per U.S. standard gallon at 70° Fahrenheit	lbs.	7.2	7.14	7.2	--
Coefficient of expansion:					
Per degree Fahrenheit	coef.	.000525	.000525	.000525	--
Per degree Celsius	do.	.000945	.000945	.000945	--
Refractive index at 20° Celsius:					
Typical index	Index	1.470	1.466	1.468	--
Specification range (U.S. standard)	do.	1.465-1.478	1.465-1.478	1.465-1.478	--
Refractive index change per degree Celsius	do.	.00045	.00045	.00045	--
Distillation range, U.S. standard:					
Initial distillation temperature	oC	150-160	150-160	150-160	--
Distilling below 170° Celsius, minimum	Pct.	90	90	90	--
Flash point range:					
Tag closed cup	oF	90-95	90-95	90-95	--
Cleveland open cup	do.	100-110	100-110	100-110	--
Aniline point, typical range	oC	14-25	18-25	14-25	
Composition of American turpentines:					
Alpha-pinene	Pct.				50-65
Beta-pinene	do.	60-65	75-80	60-65	20-30
Dipentene and other monocyclic terpenes	do.	25-35	2	25-30	16-18
Camphene	do.	5-8	15-20	5-7	0-2
	do	--	4-8	0-2	
Total		100	100	100	100

-- = Not available.

## Cotton, Cottonseed, and Cottonseed Products

### Computation and use of factors

Basis of computation. Factors have been computed on the basis of the 5-crop seasons from 1971/72 through 1975/76 and represent ratios of the 5-season averages. The 5-season average was used to bring the factors more nearly into conformity with current experience.

Use of factors. Users of these factors are cautioned with respect to the following limitations: The factors are not "official," even though they are based upon latest available official figures. Nor are they permanently fixed at the stated values because later information and shifts in relationships may necessitate revisions. Since basic data underlying certain series have differing variabilities, it should be kept clearly in mind that application of the factors will not necessarily result in the most satisfactory figure for use in current work if other evidence suggests that base period relationships are not continuing. Factors should be applied to U.S. totals only and not to State or area totals. These factors apply to full-season totals only.

### Definitions

- Seed cotton                   -- Cotton as harvested but before ginning. It is the raw product which has been harvested and contains the lint, seed, and foreign matter.
- Ricked seed cotton -- One of two forms used to store seed cotton in the field before ginning. It is a free standing stack of seed cotton which has been mechanically compacted (to about 7 to 8 pounds per cubic foot) after harvesting into a form of varying length, 20 to 200 feet, 4 to 5 feet high, and about 7 feet wide. Because it sits on the ground, the rick is not often used in areas of frequent rainfall.
- Module seed cotton -- One of two forms used to store seed cotton in the field before ginning. Modules may be 24 to 32 feet long and about 7 feet wide. Stripped cotton is mechanically compacted 9 to 12 pounds per cubic foot to a height of 9 to 10 feet. Picked cotton is compacted to 10 to 13 pounds per cubic foot to a height of 7 to 8 feet.
- Lint                           -- Cotton which has been separated from the seed by the ginning process.
- Bale                           -- A package of compressed cotton lint as it comes from the gin. Including the bagging and ties, it weighs about 500 pounds and its dimensions vary depending upon the degree of compression that may range from 12 to 32 pounds per cubic foot. A bale is the form of package by which cotton moves in domestic and foreign commerce. However, cotton is bought and sold on a net weight (pound or kilogram) basis.
- Running bale               -- Any bale of varying lint weight as it comes from the gin.
- 480-pound net weight  
bale                       -- An average bale weight used to maintain statistical comparability. It has superseded the formerly used term, 500-pound gross weight bale.

Universal density bale	-- A bale pressed in a gin or repressed in a compress one time to a density of at least 28 pounds per cubic foot.
Tare	-- Weight of the ties (or bands) and bagging materials which contain the bale. The weight of these packaging materials varies and is excluded from the reported or sale weight of the lint. The bands can be steel straps or wire. The bagging material can be jute, woven polypropylene fiber, or polyethylene plastic film, or cotton (woven or warp knit) depending on the type of bale packaged.
Oilseed	-- The cottonseed which is crushed for the oil and meal.
Planting seed	-- The cottonseed that is planted. Seed not planted is crushed in oil mills for the oil, meal, linters, hulls, etc.
Motes	-- Immature cottonseeds with fiber attached.
Linters	-- Short fibers which remain attached to the cottonseed after ginning. They are separated from the seed and used in cushioning products, as stuffing, or as a source of cellulose for a variety of chemical products.

Table 81--Cotton bale size by various agencies in compiling statistical data

Agency	Bale size	Statistical data
U.S. Department of Agriculture:		
Economics, Statistics, and		
Cooperatives Service	480-pound net weight	U.S. production
Foreign Agricultural Service	do.	U.S. exports <u>1/</u>
International Cotton Advisory		
Committee	478-pound net weight	World production, imports,
		exports, stocks, and
		consumption
U.S. Department of Commerce,		
Bureau of the Census	480-pound net weight	U.S. production and imports
	Pound	U.S. imports, mill stocks,
		exports, and consumption
	Running bale	U.S. production, exports,
		stocks, and consumption

1/ Net weight of 480 pounds lint is used for most countries beginning with 1946, and 478 pounds for prior years.

Table 82--Factors for converting cotton acreages, cotton, and cotton products to various equivalents 1/

From	To obtain	Multiply by
Acreage:		
Planted	Acreage harvested	0.932
	Cottonseed produced, tons	.358
	Cottonseed crushed, tons	.338
	Cotton produced, 480-pound bales	.919
	Cotton produced, pounds	441.000
	Linters, pounds	60.700
	Linters, tons	.030
Harvested	Acreage planted	1.073
	Cottonseed produced, tons	.384
	Cottonseed crushed, tons	.362
	Cotton produced, 480-pound bales	.986
	Cotton produced, pounds	473.000
	Linters, pounds	65.200
	Linters, tons	.033
Cottonseed produced:		
Tons	Cottonseed crushed, tons	.944
	Linters, tons	.085
Pounds	Seed cotton, pounds	1.616
Cottonseed crushed, tons	Linters, tons	.090
	Cottonseed crude oil produced, tons	.161
	Cottonseed meal produced, tons	.451
Cotton produced: 480-pound bales	Cottonseed produced, tons	.389
	Cottonseed crushed, tons	.367
	Cottonseed crude oil produced, tons	.059
	Cottonseed meal produced, tons	.166
	Linters, tons	.033
Pounds	Cottonseed produced, pounds	1.622
	Cottonseed crushed, pounds	1.531
	Cottonseed crude oil produced, pounds	.246
	Cottonseed meal produced, pounds	.691
	Linters, pounds	.138
	Seed cotton, pounds	<u>2/</u> 2.622
Cotton:		
480-pound bale	Running bales	.961
Running bales	480-pound bales	1.040
Seed cotton, pounds	Cotton produced, pounds	<u>2/</u> .381
	Cottonseed produced, pounds	<u>2/</u> .619

1/ All figures based on the 5-year average, 1971/72-1975/76. 2/ Cotton production plus cottonseed production. Cottonseed for planting: The 1971/72-1975/76 5-year average quantity of cottonseed used for planting 1 acre of cotton was 27.4 pounds per acre. One pound per acre equals 1.12085 kilograms per hectare. One kilogram per hectare equals 0.89218 pound per acre.

Table 83--Factors relating to cottonseed products 1/

Product	Factors for converting cottonseed products to	
	Tons per ton	Pounds per ton
Crude oil	0.161	322
Cake and meal	.451	902
Hulls	.251	502
Linters	.090	181
Waste	.047	93

1/ All figures are based on the 5-year average, 1971/72-1975/76.

Table 84--Space displacement of cotton and cotton products 1/

Product	Cubic feet per		Pounds per
	short ton	cubic foot	
Seed cotton:			
Untramped	400	5	
Ricked	286-333	6- 7	
Module			
Stripped	167-222	9-12	
Picked	154-200	10-13	
Cottonseed:			
Dry, delinted	57	35	
Dry, not delinted	80-111	18-25	
Hulls	167	12	
Oil	35- 36	56-57	
Cake, crushed or lumpy	44- 50	40-45	
Meal, extracted	50- 57	35-40	

1/ Industry sources.

Wool

Table 85--Scoured yield of greasy shorn and pulled domestic wools

Grades	:	Domestic production of greasy wool <u>1/</u>	:	Scoured yield <u>1/</u>	
				Shorn	Pulled
				<u>Percent</u>	
Fine; 64's and finer	:	29.0	:	46.0	67.0
1/2 blood; 60's and 62's	:	14.7	:	47.0	72.0
3/8 blood; 56's and 58's	:	26.4	:	56.0	79.0
1/4 blood; 50's and 54's	:	24.6	:	59.0	81.0
Low 1/4 blood; 46's and 48's	:	4.6	:	61.0	82.0
Common and braid; 36's, 40's and 44's	:	.7	:	64.0	84.0
Weighted average, all grades	:	100.0	:	52.8	72.9

1/ Based on Current Industrial Report: MA-22M, "Stocks of Wood and Related Fibers," Bur. of the Census, U.S. Dept. Comm., 1971-76 reports. Percent of production by grade was based on the stocks reports and wool supply and use data for 1971-75.

UNITED STATES DEPARTMENT OF AGRICULTURE  
WASHINGTON, D.C. 20250

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